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AMONG the recent consular reports, we notice one on "The Gold and Silver Mines of Honduras," by Vice-Consul GEORGE BERNHARD. According to his report, the accounts of the mineral wealth of that republic have not been greatly exaggerated, but would appear to be only available to the "large investor." Before reading the report, we were under the impression that quite a number of American companies were successfully mining and actually shipping bullion from their properties; but evidently we have been misinformed, as, from the data furnished by Mr. BERNHARD, only one concession has produced any great results, and, in fact, we are led to infer that no other American companies even hold titles in fee simple to their properties, and are, therefore, liable at any time to dispossession. Unfortunately for the value and reliability of the report in question, we are informed that Vice-Consul BERNHARD is not only acting as a United States official, but is also the agent in charge of two of the mines operated by the New York company, which alone "holds its property in fee simple." Further comment seems unnecessary.

THE recent strikes and labor troubles in Belgium, coupled with the continued depression in the trades generally, and more especially in the small-arms manufactories of the province of Liége, have led to the appointment by the Belgian government of a commission to inquire into the causes of the miserable condition of the workers in this trade, and if possible to devise means to alleviate them. We had always been aware that the condition of the Walloon was below that of the average European workman; but the extent of his moral and physical degradation, shown by the evidence adduced before this commission, is simply astounding. A total lack of education appears to be the rule throughout, rather than the exception. The "truck" or "store" system of payment by the companies' agents or "deputies" has been carried to such an extent that the workmen are kept in a state of veritable bondage. The general use of female labor in the factories appears to be acknowledged by all as fearfully demoralizing. The prices of labor have been brought down to the lowest point it is possible to subsist on; and yet with all this, it is found that foreign competition is taking away the whole trade. Formerly, Liége was the most prosperous center of the small-arms trade in Europe; but to-day, the whole of this business is slipping away from her hands. The manufacturers, who really are to blame, seem to think this could be remedied by government help; but from all the evidence adduced, it is evident that at least this one branch of manufactures is simply languishing from "dry rot." Just imagine a trade in which it appears that no improvement in the methods of manufacture has been introduced for thirty-five years! Each part of the guns was then made by hand, and each part continues to be so made to-day. Every sign of outside competition, instead of being met intelligently by the introduction of machinery to lessen the cost of production, has simply been tided over by a cutting down of wages, until the limit of actual starvation is reached. We can hardly imagine a good mechanic on a branch of fitting, requiring many years of practice and great exactitude, having to work thirteen hours a day for the pitiful sum of 15 francs (less than $3) a week, and yet such was the evidence given before the commission by more than one witness; and in several instances the men swore that even constant work at these starvation prices was only vouchsafed to those whose wives and daughters would pander to the lusts of their foremen. With such a picture before us, can we wonder at the excesses committed by the men on strike, when once their passions had been aroused enough to induce them to revolt against their tyrannical masters? Matters seem so bad that we hardly think the commission will do much immediate good. It seems to us that little short of a thorough social revolution, based on some system of enforced education of the masses, will ever raise the Walloon workman from the state of moral turpitude into which he is plunged and place him on a par with his German or English neighbors. Nothing but education, with its consequent raising of the standard of self-respect, will ever be able to obliterate from the streets of Liége that familiar but degrading picture of the "Bottress" (veritable female beast of burden) staggering under her load of rifle-barrels piled high across her shoulders, and fouling the very air around her with the vilest oaths and jests of the Walloon vocabulary. We would add, that apparently a little increase of *liberal education* would not hurt the investigating committee itself, if we may believe the reported expression of one of its members that "the reading of newspapers by the working classes is hurtful, as tending to unsettle their minds and raise in them a spirit of discontent."

ELECTRICAL SUBWAYS ABROAD.

The two Boards of Electrical Subway Commissioners in New York and Brooklyn have had very different experiences, and have adopted different plans. The problem of putting the wires underground is not the same in the two cities; the construction of the law by the two boards, their relations with the electrical companies, and the consequent course pursued by the latter, have not been alike in Brooklyn and New York. The concrete conduit adopted by the New York Board has been permitted as an experiment, at the request of the Telephone Company, on a part of the Brooklyn lines; but the Brooklyn Commissioners, in their last report, pretty clearly intimate their impression that it will prove practically no better than the simpler and cheaper conduit of creosoted timber, which they had previously approved. And there is a conspicuous absence in Brooklyn of the elaborate physical and chemical tests

of the conduit which the New York Commissioners seem to think essential.

It is not our purpose to criticise these differences. We wish rather to point out a fact which affects both boards in common—and, by the way, we do not mean the fact that neither of them has had a cent of money from the State, and that they have had to do whatever they have done at their personal expense and without remuneration. That is a circumstance which might well temper the criticism of the newspapers, even if conscious ignorance did not. But we would call attention to another circumstance, which few, outside of experienced electricians, have seemed to know—namely, that the problem of underground electric communication, as presented in American cities, not only has not been solved in Europe, but has not been seriously attacked.

This statement may surprise some of the smart editors who have frequently declared that the way to put the wires underground is to "*do it*, as they do everywhere in Europe." But vague and sweeping assertions of that kind can not stand against the results of thorough inquiry.

President PLYMPTON, of the Brooklyn Board, has just returned from a journey, undertaken for the express purpose of ascertaining the exact condition of this question abroad, and including personal examination of the systems in use at Liverpool, London, Durham, Newcastle, Brussels, Antwerp, Cologne, Wiesbaden, Frankfort, Heidelberg, Berlin, Munich, Lucerne, Venice, Milan, Turin, and Paris. These cities represent every method of distributing telephone, telegraph, and electric light wires now practiced or proposed abroad.

Telephone wires are not underground anywhere, except in Paris, Bordeaux, and Newcastle.

In Paris, all wires are placed in the sewers, so far as these extend. Where there are no sewers available, the telephone wires are extended over the house-tops, while telegraph wires are placed in cast-iron pipes. The Paris telephone system is not comparable for complexity and extent with that of American cities. It does not involve a vast, growing, and shifting number of scattered subscribers. About 4200 subscribers are served through the sewers, and 200 with aërial lines; and no excavation for the purpose of burying telephone wires has ever been made in Paris. In other words, with 95 per cent of a complete underground system ready furnished without cost, the Paris electricians have not undertaken, and do not now propose to construct, the other 5 per cent.

Bordeaux has a small telephone system in iron pipes. It is not working satisfactorily, which is, perhaps not specially the fault of the pipes. The system presents nothing novel or suggestive. All other French cities have their telephone wires in the air. The total number of instruments in all France, outside of Paris, is only 2200.

Newcastle has a small system successfully buried. There are less than 600 telephones in the exchange, and the case presents no special novelty. The wires are in pipes, and metallic circuits are employed.

There is in London an underground telegraph system, but the telephone wires, except a few government lines, are all overhead.

In Germany, only the military telegraphs—no telephone lines—are underground.

In Belgium, telephone wires are exclusively aërial, and there is no expectation of any thing else, if conclusions may be drawn from the rate at which iron fixtures on house-tops and in the streets are set up, including a new line of handsome "poles," a mile long, in Antwerp. The Antwerp system is copied in Sweden, where it was introduced by the engineer now in charge at Antwerp.

In Italian cities, telephone wires are largely carried on brackets under the eaves, because the construction of the roofs makes the erection and maintenance of supports upon them impracticable. There are no underground telephone systems in Italy.

President PLYMPTON found, moreover, that the electrical problems presented by the scheme of placing underground all electrical conductors had received little attention abroad. Nobody was thinking of doing the thing, and hence nobody had attempted to overcome its difficulties. The nearest approach to it is in Berlin, where the Edison Light Company is permitted to place its conductors underground, keeping them two meters from all buildings which they pass, and one meter from any other wire (such as a military telegraph). Where the Edison wires cross other lines, they must be one meter above or below the latter, and must be inclosed in iron pipe, presumably as an induction-shield. Induction being at a minimum any how when two conductors cross at right angles, this is merely an easy and probably sufficient solution of the simplest and least troublesome case.

The electric lighting companies of the United States often employ currents of higher tension than those used in Germany (by the Siemens system, for instance), and they supply also the alternating current, which has many advantages, but undoubtedly increases the difficulties connected with induction. On all the subtle and critical questions raised by these conditions, foreign experts are absolutely dumb. They may be thinking unutterable things, or they may be making in secret indescribable experiments. But they have reached no result; and they regard Americans engaged in that line, sometimes with awe, as superior beings, sometimes with amusement, as persons who rush in where superior beings fear to tread.

It is plain that there are reasons enough for permitting our Boards of Electrical Subway Commissioners to move with caution and care. The Brooklyn Board, which has had the easier problem of the two, has accomplished a good deal. There are at this moment more miles of telephone wire actually working in Brooklyn in underground conduits constructed for the purpose than in any European city. And the enterprising editors who periodically call for more vigor, and want to have things done "as they are done in Europe," are respectfully informed that in Europe little has been done and less is now doing. *

CORRESPONDENCE.

[We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.]

Mining in China and India.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I notice with pleasure that your columns, as also those of your English contemporary, contain with increasing frequency allusions to a subject of growing interest, namely, mining in these vast but little known fields of Asia. Your issue of April 17th, classing this old continent among the States and territories of its younger antipodean equal, notices briefly the gold diggings of the China-Russian Amoor Valley. This is undoubtedly a vast and most important gold-field, or, rather, part of one, which deserves more attention than it is likely to obtain while buried between the two largest and most inert of unprogressive old world empires. *En passant*, I may mention that other districts exist nearer the coast, in the Amoor country, where gold might be developed by immigrant enterprise under less lynch-like and autonomous government. In China proper, mining is not open to outsiders. No property can be owned nor security obtained for capital invested in the country, while employment is only extended to a few Europeans in the service of semi-official mining undertakings. Of mining in China, the world will, therefore, hear but little at present, though the era of progressive reform is at hand. India has certainly made a mark in the mining world during the last ten years, though unfortunately too much in the character of a stain. I do not see reference to Wynaad and Mysore operations under your general mining notes. Your issue of April 17th, however, recalls to me, in an advertisement, a province of Asia, in which China has indirectly taken considerable stock and interest. A middle-aged "mining engineer is 'wanted' by an English company to go to the Malay Peninsula" prospecting, and to Mount Ophir for choice. What a rare chance for some well-worn prospecting sharp, debarred from sanguine youth, however. But I fear if more were generally known about this balmy land of perpetual summer, the Britishers had "wanted" for a long time before getting a good mining engineer located in Johore, where "wanting" appertains to most things connected with gold mining. My remarks are based on exceptional personal experience. To those who use the hackneyed Solomonian fame of this one, of many reputed Ophirs as a lure to confiding speculators and experts eager for active employment, to start and fail with more abortive companies than we have already seen down there, I wish all bad luck, while no one can desire more sincerely to see *bona-fide* enterprise succeed in this field. To mining men who may be dazzled with the prospect (in hard times only, let us hope), I would recommend a careful preparatory study of the comparative advantages and disadvantages of life in a tropical wilderness. To the advertisers, I would recommend a man ten years younger than their stipulated age, unless they can find an acclimatized, experienced mining engineer. Both young blood and a fresh-trained professional knowledge are essential desiderata (together with quinine and Mark Tapley pluck and contentment) in this new field, where every thing has so far been botched by half-hearted, ignorant, and incapable management, and where well-directed capital, energy, professional knowledge, and skilled labor have not yet had a show. Yours truly, H. M. B.

CHEFOO, CHINA, July 13, 1886.

International Exhibition in Spain.—An international exhibition, under the auspices of the Spanish government, will be held at Barcelona, from September, 1887, until April, 1888. The exhibition will include all things connected with agriculture, industry, commerce, navigation, electricity, and education. In order to encourage the display of novelties, the government will guarantee the protection of Spain to the exhibitors of inventions capable of being patented, and of drawings, models, and trade-marks.

A New Material for Railroad Ties.—A foreign technical paper, with an unpronounceable name, says that a new and important application of ozokerite has been recently discovered in Russia. It is now used for making ties on the Transcaspian Railroad, which has already passed Oschabat and nearly reached Merv. The process of manufacture is very simple and inexpensive. Kyra, the local name for ozokerite, is found there in thin layers of seven-inch thickness. In its primitive state, it contains a certain percentage of decayed matter. To remove this, the ozokerite is melted in large caldrons, the refuse sinks to the bottom, and the pure ozokerite collects at the top. This purified ozokerite, melted and mixed with 75 per cent of limestone and 25 per cent of fine gravel, gives a very good asphalt, which is pressed in boxes shaped like railroad ties. Notwithstanding the high temperature, which reaches 48 degrees R. (140 degrees Fahr.), the ties retain their shape and hardness. These asphalt ties are used all along the road, except at the ends and center of every rail, where as yet wooden ties are employed. In this way, about $800 a mile is economized.

THE FINENESS OF NATIVE GOLD IN THE CAROLINAS AND GEORGIA.

Written for the Engineering and Mining Journal by Prof. George B. Hanna.

The quality of native gold varies throughout the Carolinas and Georgia to a large extent with the formations.

The easternmost auriferous belt, running a little to the west of Raleigh, shows a variable fineness at the different ends of the belt. Toward the northern part, well up to the Virginia line, assays show the gold to be about 925 m. fine, with from 60 m. to 75 m. silver, with a *very* little iron and occasionally a trace of copper; for example, Portis mine, in Warren County. In the southern part, in Moore County, the range is from 700 to 750 m. gold, and from 225 to 300 m. silver, with similar base constituents. In the first locality, the gold is almost strictly "placer;" in the latter, it is partly derived from a mill treatment of the schists.

Throughout this entire area, arsenic, antimony, etc., are rare in the native gold, and it is not quite certain that these metals may not have been introduced by careless manipulation in some cases.

In the central region, that is, from Greensboro' to Charlotte, and a little farther southward into South Carolina, gold ranges from 850 to 950 (*very* rarely 975); for example, the North State, Lindsay, Phœnix, Reed, Capps, Rudisill, Saint Catharine, from 900 to 925 would characterize the average, with a trifle more iron, and sometimes as much as from 5 to 10 m. of copper, inasmuch as the material comes from the veins that carry large bodies of pyrites.

In the slate region just to the east of this central belt, the gold is derived from slates, which often carry pyrites or galena, and these, especially the galena, have apparently had a large influence in lowering the grade, which rarely rises to 900; for example, Howie, from 725 to 775; Gold Hill, from 850 to 900; Phiffer, from 750 to 800. Most frequently, the fineness will not rise above 825. Where galena is abundant, the proportion of gold is reduced to 450, and on rare occasions to a still lower point; for example, Davis mine, gold, 450 m. and sometimes less; Stewart, gold, 550; silver, 447. The native gold itself does not often have more than a trace of lead.

In the extreme western part of this State, the gold is almost purely placer, and more or less nuggety. The fineness is rarely as low as 800, and most generally runs above 900, occasionally rising to 980, with the least possible amount of base metal.

In the Burke County mines, which are chiefly placer, the gold is tolerably uniform, from 825 to 850; for example, J. C. Mills mine, Hancock mine, and the Brindletown localities generally; but in the adjacent McDowell County, the mines that afford mostly placer gold, the grade lessens to from 780 to 800; for example, Vein Mountain and Granville. In Rutherford County, still farther south in this belt, the grade rises to nearly 900; for example, Golden Valley.

In Polk County, still farther south in this belt, the fineness again rises, being rarely less than 900, and not often more than 950; for example, Double Branch and Splawn mines.

In South Carolina, in the easternmost belt—for example, at the Brewer, which is a placer mine—the gold is of *very* high grade, being sometimes 980, and originally *very* nuggety. Somewhat west of this, in the locality of the Haile mine and vicinity, it is from 870 to 910 (890 being a fair average).

As regards the western part of South Carolina, not much is known; but judging from the samples that have come into the writer's hands, it is provisionally rated at from 750 to 900, rarely more. The Broad vein placer gold is not often under 900.

In the State of Georgia, which was occupied by a somewhat more intelligent class of Indians,* and where all the circumstances favored placer exploration, and where the ordinary course of nature facilitated in a high degree the finding of nuggets, the grade is almost uniformly above 900.

In Rabun County, the extreme northeast county of the State, the gold is almost invariably 950 and above to 975; for example, the Smith mine.

In White County, in the same belt to the southwest, the grade is from 900 to 960; for example, Lumsden, Nocoochee, and Loud mines. In Lumpkin County, to the southwest again, the grade lowers to from 850 to 925; for example, Barlow and Ralston, from 875 to 890; Gordon, a little lower; Auraria, Lockhart, and Findley, 925. Probably the most prolific source of nugget gold about Dahlonega shows nuggets of a fineness of from 875 to 900. As Dahlonega was noted among the Indians for the occurrence of gold, it is not improbable that it may have been the point whence it was transported far and wide.

The parts of the belt still farther southwest show a rising grade: Dawson County, from 900 to 925; Forsythe, rather higher; and Cherokee (Franklin & McDonald mine), from 950 to 975. These two mines, which are practically one, were originally very productive of native gold, which, being of unusual beauty, may also have been scattered far and wide among the Indian tribes.

In Carroll County, about Villa Rica, the fineness is the same as that last quoted, and about Carrollton, somewhat less, from 875 to 925; Bonner mine, from 875 to 900. Still farther southwest, and going into Alabama, the grade is rarely above 925 or lower than 875, so far as known to the writer.

(1) In Columbia and McDuffie counties, Georgia, Columbia, Warren, and Sale & Lamar mines, the grade is from 850 to 900, and in the more southern belts of the Georgia field, as far as known, it lies between 850 and 900.

Almost all the gold from this State was originally placer, and still is so largely, but most of the present gold is derived from the schists.

It may be doubted whether the gold found in the localities marked (1) occurred in such favorable circumstances as to have afforded much stock to a rude people; but in the more northern belts, and their corresponding extensions into North Carolina, there must have existed conditions eminently favorable to accidental finds or even to crude mining; and throughout this area, the native gold ranges from 875 to 980, and much the larger number of localities are above 925.

When it was said above that iron is found in native gold, the statement must not pass without some qualification; for in many cases, it is known to be due to slight proportions of oxide of iron mechanically contained in minute cells in the nuggets, etc; and the same has also been observed occasionally of oxide of copper.

* This article was originally prepared for Mr. George F. Kunz, in the hope that it might throw some light on the probable locality whence was derived the gold of which prehistoric Indian ornaments were made.

ANGEL'S CAMP, CALAVERAS COUNTY, CAL.

Written for the Engineering and Mining Journal by E. K. Stevenot, M.E.

As some of the mining properties in this important mining region are owned or partly owned in New York, I suppose your Eastern readers would feel pleased to get occasionally some information in regard to the progress of work in the locality they may be interested in. The mines here are all located on the mother lode of California. There are several quartz mills running at this place on gold ores, and all doing well. Among them is the Gold Cliff mine, owned by New York capitalists. It has a twenty-stamp mill, which has given full satisfaction to its owners. They can mine and mill the ores for one dollar a ton. All the ores are extracted by open cut and tunneling, with masses of ore in sight. Besides the large gold-bearing quartz vein, there is a large deposit of talcose slate formation from 100 to 300 feet wide, alongside of the quartz vein, all of which is pay ore, and is milled as well as the quartz vein itself. I have been informed by one of the owners that they intend putting up a sixty-stamp mill on that mine next spring.

Two miles south of Angel's Camp is the Albany or Chapparal Hill, celebrated for its rich surrounding placer mines, in the early days of California. On this hill is found the same mother lode, and what is called the Chapparal Hill quartz mining property, which has been opened up to a depth of about 300 feet below the apex of the hill by tunnels and drifts, showing a vein or lode about 35 feet wide at that depth. The milling test of the average gives a result of $5.50 a ton. The ores can also be mined and milled for one dollar a ton. This property is an extensive one, there being nearly 4000 feet in length of vein from five to sixty feet wide; also twenty acres of placer mine, and ten acres of mill-sites at the foot of the hill—all United States patent title. The Chapparal Hill mines are bonded to a gentleman in New York, who is forming a company in that city to put up the necessary machinery on that property, which will undoubtedly prove a profitable investment. Abundance of water-power can be had for all milling purposes, and a plentiful stock of wood should it be required.

Two miles still farther south, running down the south slope of the celebrated Carson Hill, to within 600 feet of the north bank of the Stanislaus River, is located the Santa Cruz quartz mine, situated on the same lode or vein. This mine is 2390 feet in length, with a United States patent. A mill-working test of thirty tons yielded at the rate of seven dollars a ton in gold, and the vein has at that point a five-foot width of such milling ore. On the whole length of the mine, the vein is from five to thirty feet wide. This property has all the advantages required to work it cheaply, as the ores can be mined and milled for one dollar a ton. There is abundance of timber on the ground and water-power to be had for running a mill. The county road runs all along the property. The lumber for building purposes is delivered on the ground at the rate of from twenty to twenty-two dollars a thousand feet; transportation of machinery from San Francisco to the mine, fifteen dollars a ton. This mine, with capital to take hold of it, will prove to be as good a property as there is in this State, and this, too, with a small outlay, compared with other mines.

This mine was worked by some Mexicans in early days. They took the ores to arrastras run by jacks at the foot of the hill, and paid them from $300 to $500 a ton. This ore was taken out of the spurs leading into the main vein. These spurs still prospect very high, wherever not mined out.

To some, it may seem a small thing to say that the ores will pay about $5 a ton. But if they stop to consider that the ores can be mined and milled at the rate of about one dollar a ton, and that there are large quantities of the ore, they will see that such properties can be made to pay large profits. Besides the low-grade rock, these mines have also chutes of high-grade ores, which occasionally run up the average pretty high.

The Use of Metallic Hydrogen.—MM. Schwarzenbach and L. Kritschewsky, in the *Zeitschrift fur Analytische Chemie*, have a paper on the application of metallic hydrogen in analytical chemistry. Following Graham, they find that hydrogen absorbed by palladium, which they consider as metallic hydrogen, possesses a remarkable reductive power, nearly all the metals being precipitated by it in a metallic state. The authors used a thin rolled plate, or a wire of palladium saturated with hydrogen by the galvanic process.

The Iron Tower of the Paris Exhibition.—The iron tower that is to form the chief attraction of the Paris Exhibition of 1889 is already beginning to fill the Parisian mind with apprehension, and a *savant* explains in the *Moniteur* the curious phenomena that will be produced by this immense mass of iron rising to a hight of 300 meters. He says that the enormous blocks of iron running north and south will be polarized, and that the polarization will soon invade the whole column. Then who knows whether the four lifts with their continual friction will not increase the magnetic influence a hundredfold? In this case, all articles for a mile around will be attracted to the tower, and will adhere to it as a needle does to a magnet. If the troops quartered in the Ecole Militaire, hard by, be called out to drill, it will be all in vain for the commanding officer to shout "En avant!" if they are paraded with the column behind them; they will irresistibly be drawn to the rear, with the exception of the drummer, who does not carry a rifle. All the houses in Paris will suffer from a St. Vitus's dance, and, gradually attracted toward the Champ de Mars, will finally find themselves stuck to the tower. As for locomotives entering Paris, it will be found impossible to stop them at the various termini; they will rush through Paris and dash themselves to pieces against the center of attraction. These and other evils, we are told, will follow the erection of the great Eiffel tower; but then the *Moniteur* is opposed to the anniversary of the capture of the Bastille being observed, and may have exaggerated the consequences.

NOTES ON A REMARKABLE COLLECTION OF ROUGH DIAMONDS.*

By George F. Kunz, New York City.

Among a collection of rough diamond-crystals now on exhibition at Messrs. Tiffany & Co.'s, New York, are a few worthy of special mention. The feature of the collection is, that it is made up of material regardless of the price of the crystals. Mineral cabinets usually contain only diamond crystals that have little commercial value; hence many crystals exhibiting the finest and most unique forms never leave the paper, except to go to the cutter. The really fine material is seldom examined by the practical mineralogist. If he wishes to purchase, he calls for the paper of material that he can afford to select from, in the hope that it may contain something of interest to him. The collection was formed by one of the largest dealers in rough diamonds in the world, who is also financially interested in South African diamond mining. With his facilities and capital, he could select the best crystals, regardless of value; for if he lost enthusiasm, the only sacrifice would be the interest of the money invested by him, even if he could not further realize on them as mineralogical specimens.

There is also a splendid suite representing most of the South African

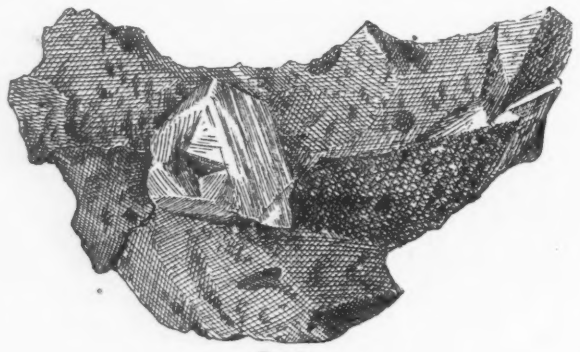

FIG. 1.

occurrences. The rock is what is commonly called "blue stuff," and crops out across the "black shale." It is a true conglomerate, formed of an altered enstatite, and is chiefly a hydrated silicate of magnesia. All through this apparently pasty mass, angular fragments of the black carbonaceous shale, and those fine large-sized garnets that sell as "Rubin du Cap" in Paris, are found. A very interesting associate is the chromium diopside (euklogite), a variety of pyroxene, of which there is a remarkable specimen 75 mm., 48 mm., 35 mm. This form, usually found in small pieces not over 20 mm. long, is of a rich dark-green color occurring darker here than at any other locality where it is found in gem form.

Vaalite, a hydrated mica, is also visible in a variety of forms in most of this series of specimens.

No. 4 (Fig. 1) is of unusual interest. It is a fragment of a large yellowish octahedral diamond, about 30 carats in weight, and measuring 24 mm. and 22 mm. respectively, on different octahedral faces. It is 9 mm. thick on one side and 5 mm. on another. Before it was broken, the crystal

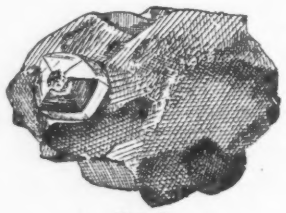

FIG. 2.

probably weighed from 70 to 80 carats at least. The fact that the broken side of the crystal is imbedded in the rock clearly shows that the latter is a secondary formation. (Fig. 2 is a diamond in the river conglomerate.)

No. 83 is a $1\frac{1}{32}$ carats fragment measuring 5 mm. by 2 mm. of a whitish diamond. On its cleavage face, a small group of cubes of iron pyrites is deposited, also a secondary formation, since it is partly on a cleavage-surface, and does not penetrate the stone.

No. 82 has some interest also. It is a dirty-white, irregular crystal, measuring 9 mm. by 5 mm. by 5 mm., weighing $1\frac{15}{32}$ carats, and deeply pitted, apparently by pressing against the surrounding matrix during formation. Three lots, embracing 20 specimens in all, are well worthy of inspection, as examples of the variety of diamond called "extrême dureté" by the French (*apparently a distinct form of the diamond*). This "hard round-bort" (Fig. 3) is often called the "rolled diamond;" a palpable misnomer, since the diamond can not be rolled. There is nothing in nature hard enough to abrade it except the diamond itself, and this is never found in sufficient quantity. Moreover, the form under consideration is quite uncommon, and so excessively hard (see *Science*, Vol. III., No. 69, May, 1884) that it could never be abraded under any natural circumstances, not even with an entire pot-hole of diamonds, a very unlikely occurrence. It requires one hundred days to put a slight polish on a surface 5 mm. square. For instance, the Kohinoor (with 2000 square mm. of surface) was *cut* in thirty-eight days of twelve hours each, making a total of 456 hours, while it took 1000 hours, or nearly twice as much time, to *polish* the 5

FIG. 3.

mm. surface mentioned above. The wheel (14 inches in diameter) had traveled over 75,000 miles, and revolved 2800 times a minute, about the highest rate of speed used in diamond-polishing, which would make the resistance at the very least 100 times as great. (See *American Journal of Science*, July, 1885.)

This form is made up of a multiplicity of twinnings of cubes or radiating agglomerations of cubes. The roughness is evidently due to the fact that the cube face in nearly all diamonds is indistinct, which was characteristic of all cases observed here.

At times, instead of twinning, cubes have been noted that were made up of an apparently fibrous grouping, resembling a round ball, but really made up of a bunching of cubes. This is the case also in some distorted forms without this ball-like appearance; one specimen resembles a piece of putty after compressing between the fingers, one side being entirely flattened and the other somewhat convex (Fig. 4).

FIG. 4.

Another interesting specimen is a piece of this hard round bort (Fig. 5), with a perfect octahedron of crystallized diamond penetrating (?) and projecting above the mass, showing that the two forms have crystallized under different conditions; also two broken masses of the same, both of which reveal a structure radiating from the center of the mass (Fig. 6). As none of these has been observed in South Africa, so far as I can learn after a wide inquiry, it seems probable that both this *hard form and the cube form of diamond are peculiar to Brazil.*

FIG. 5.

FIG. 6.

The most beautiful inclusions are in lot 26. Among others, are two octahedrons and two hexoctahedrons, all white, weighing about $\frac{3}{4}$ carat each, and measuring 3 mm. in diameter, which contain large spots of a rich aurelian red inclusion from ·5 to 2 mm. in size (perhaps red oxide of iron?). In addition to this, these stones also contain black carbon inclusions, which, contrasted with the white stone and the brilliant red, present a beautiful appearance. It is, in fact, one of the most beautiful of included-mineral specimens. No. 34 is a much flattened and distorted dodecahedron, 13 mm. by 8 mm. by 3 mm. Fully one half of the whole center and of one side is filled with a curious, broken, almost dendritic mass of carbon, which allows the light to pass through it in many places.

In lot 31, there are 35 crystals varying in weight from one quarter to 3 carats, all dodecahedrons with curved faces, which are often irregular and broken. Nearly all of them are brown, and contain carbonaceous inclusions. The most remarkable one, however, is a flat (7 mm. by 2 mm.) crystal, almost entirely filled with a black inclusion, in three triangular divisions, with interspaces of nearly equal width (Fig. 7). This stone, if polished, would make a wonderful clover-leaf diamond, similar to those in the Jardin des Plantes, and at Munich.

FIG. 7.

FIG. 8.

No. 50 is a beautiful white spinel-twin, $1\frac{19}{32}$ carats in weight, 5 mm. on each triangle, and 1 mm. thick, with a round, black inclusion, occupying all the center of the stone, and is a fine gem uncut (Fig. 8), also a series of white spinel-twins (Fig. 8, *a*).

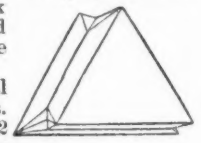

FIG. 8, *a*.

In lot 58, there are five examples of accidental intergrowths of pure white octahedrons. One of 6 mm. (Fig. 9) has a small crystal (2 mm.) projecting from the side, and the other four representing the same type, only less distinctly formed, show very interesting groupings of two crystals, one having a fine penetration octahedron (Fig. 10).

FIG. 9.

No. 59 (Fig. 10) is a fine white octahedral crystal (8 mm.) from which one face of the octahedron has been removed by cleaving. After this plate was removed, an inner crystal dropped out. This inner crystal (2·25 mm.) was inclosed at an angle directly opposite to that of the plane of cleavage, and as several of the faces show compression, it was probably formed simultaneously with the larger crystal. And what is more interesting, one point of the octahedron has been broken at a carbonaceous inclosure in such a manner as to leave a small part of it in the larger crystal. This can be readily seen with the glass, and appears to be a polished cube face, or polished cubic cleavage started by a flaw on the surface of the small crystal. It is, however, more likely a cleavage parallel with the large crystal, showing that both crystals intergrew.

FIG. 10.

No. 61 contains 22 crystals from 3 to 9 mm. in length, weighing from one quarter to 3 carats each, which afford various examples of intergrowth and grouping, in a few cases with only a single point of contact. Again, octahedrons are piled on top of one another after the manner of gold crystals.

No. 62 contains 4 crystals, either white or yellow, that illustrate very aptly the form described by J. Hirschwald, *Ueber Wachsthum und Zwillingsbildung am Diamant, Zeitschrift für Krystallographie*, Vol. I., plate VIII., Fig. 1, 1877.

At first glance, these groupings would appear to be cubes. The largest is 7 mm., the others range from 3·5 (yellow) to 12·5 mm., and are a combination of the rounded hexoctahedrons with the polished octahedron.

No. 64 consists of two very interesting bunches of hexoctahedrons, forming a rosette or a remarkably perfect six-pointed star (Fig. 11), 12 mm. across and 9 mm. thick. The color of this larger group is grayish-white, but the smaller one is pure white.

FIG. 11.

No. 65* displays a very remarkable grouping of crystals, measuring 19 mm. by 15 mm. by 5 mm., and weighing $10\frac{17}{32}$ carats. This group is made up of at least twenty hexoctahedrons, showing the simple octahedral faces. The arrangement is apparently confused, yet the markings are very symmetrical on the whole mass, proving that they formed in the same orientation (Fig. 12).

Lot 15 includes six octahedral crystals, weighing from one half to

* Proceedings of the American Association for the Advancement of Science, Vol. XXXIV., Ann Arbor Meeting, August, 1885.

* Von Baumhauer, *Sur la Crystallisation du Diamant*, Plate 4, Fig. 1.

1 carat, and from 3 mm. to 2 in diameter, that deserve notice from their rough, granulated appearance, as if hollows had been eaten in them by acid, and afterward filled in with some grayish-black earth. These crystals bear a strong resemblance to the form of magnetite that occurs in chlorite, especially in Harford County, Md , in which the edges of the crystals are very sharp and well-defined, though the faces are dull, as is the case with these crystals. On examination with the glass, however, it is readily perceived that these minute hollows in the rough surface are really smooth, and bright spots are visible, revealing an inner crystal that is white and transparent. The outer layer is gray and mixed with impurities, and there was evidently a lack of material to cover the faces completely over, so that the surface was left rough, but with a sharp and well-defined crystalline form.

FIG. 12.

In No. 14, there are two octahedrons (from 6 mm. to 7 mm.) having a very opaque, gray crust, yet transparent internally. If this crust were removed, as is often done in diamond cleaving, octahedrons quite clear, and perhaps more than one half the weight of the original crystals, would remain.

Among the white crystals, is a suite of seven octahedrons, all about 14 mm. in size. This lot weighs $90\frac{26}{32}$ carats: and some of them are almost ideal crystals in respect to form and polish of the faces. A few show slightly the development of hexoctahedron or tetrahexahedron, and one in particular has an unequal development of the hexoctahedron so as to suggest a reëntrant angle. The fine polish on the crystals is also somewhat enhanced and

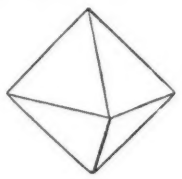

FIG. 13.

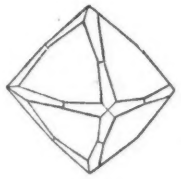

FIG. 14.

beautified by shallow triangular depressions. Lot No. 2 presents what seems to be a rhombic dodecahedron, but in reality is an octahedron with triangular octahedral faces, so raised by unequal growth as to resemble the dodecahedron, and covered with deep striations parallel with the intersection of the octahedral and dodecahedral faces. This crystal is white, transparent, weighs $11\frac{27}{32}$ carats, and measures 13 mm. by 10 mm.

To appreciate fully the beauty of a natural diamond-crystal, one must examine such specimens as those in lot No. 6, containing 15 crystals from 3 mm. to 5 mm. across, and lot No. 7, containing 58 crystals, weighing in the aggregate $12\frac{26}{32}$ carats, and from 2 mm. to 3 mm. across. There are some crystals of such perfect whiteness as to rival those from Brazil, and are the highest type of color from the Cape. They are so resplendent that they refract light almost like cut diamonds. Here also we find the faces of the hexoctahedron and tetrahexahedron, and hexoctahedron and octahedron combined (Figs. 13 and 14).

Lot 23 contains four beautiful examples of the octahedron described by Rose, *Ueber die Diamanten, Abh. der König. Akad. d. Wissensch.*, Berlin, 1876, figure 34; and J. Hirschwald, *Ueber Wachsthum und Zwillingsbildung am Diamant, Zeit. fur Krystall.*, Vol. I., No. 2, 1877, figures 4 to 9, plate 8 (Figs. 17 and 18). In this case, the octahedral faces have been built out by unequal growth, and are on a raised elevation above the hexoctahedron, which has given the crystal a divided appearance or caused depressions at all of the cube faces. The crystals measure 10 mm., 8·5 mm , and two are 4 mm. in diameter, and look like the grouping of several

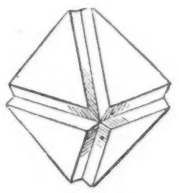

FIG. 17.

octahedrons. One elongated hexoctahedron in lot 69 measures 9 mm., 4 mm., 1·25 mm. A rose-colored twinned crystal, and one half of it showing a curious step-like structure (Fig. 19) in lot 67.

Yellow diamonds are looked upon with disfavor by many, and rightly so, when we consider the muddy and undecided shades that are termed yellow. But a moment's glance at the series of yellow crystals in this

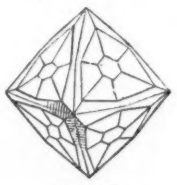

FIG. 18.

FIG. 19.

collection can not fail to lead every one to a more just appreciation of their beauty, and even to give them the preference over the other colors.

Starting with lot No. 8, we have 5 octahedral crystals weighing 3 carats in all, and the largest crystal measuring 6 mm. They are ideal crystals in form, and have only a slight yellowish tinge, coming, therefore, under the class called second white.

Lot No. 72 contains two fine canary-yellow crystals, one elongated 13, 10, 5 mm. and the other rounded 10 mm. They are rounded hexoctahedrons, with a square depression 15 mm. by 1 mm. on one cube face. In this lot, as in the preceding, the natural polish of the crystals is so remarkable that they might be worn as gems in the rough state.

The color of the 110 pink crystals in the collection varies from a very pale, transparent, and *opalescent* pink to a deep pink or even dark lilac color. They weigh from one sixteenth to one carat, and the faces generally observed were the octahedron, the dodecahedron, the tetrahexahedron, and the hexoctahedron. Some are crystallized, as spinel twins. Pink diamonds do not usually crystallize perfectly, nor are they transparent, as will be evident from an examination of this series.

In lot No. 3, there is a fine $7\frac{6}{32}$ carats crystal, measuring 23 mm. on a face, and so filled with impurities as to give it a deep brown color. It is interesting from the triangular depressions on its surface, some of which are 2 mm. long and 1 mm. deep. An interesting crystal in lot No. 9 weighing $11\frac{6}{32}$ carats and 14 mm. in diameter, has on its octahedral faces, which are here raised plates almost the size of the crystal face, and on the edges showing the faces of the hexoctahedron, also peculiar triangular depressions.

Some very beautiful brown crystals are found in lot No. 19, one of which, of a rich coffee-brown shade, measures 7 mm. on a face, and is transparent. Several others in this series are of the same color, and some are spinel twins. Some measure only 1 mm. on a face, but nearly all are of gem value.

No. 78 is a large cleavage of a hexoctahedron, measuring 13, 9, and 5 mm., and weighing $5\frac{1}{4}$ carats. In point of color, it is one of the most remarkable stones in the whole collection—a gem as it is—being really of the color of crude petroleum, deep yellowish brown. And what is still more remarkable, the stone is as fluorescent as that substance. A gem cut from this stone would be very beautiful. On one of its angles is a round cavity 3 mm. long, 2 mm. wide, and 1·5 mm. deep, which was evidently produced by partial inclusion of some other material. A beautiful pale green distorted crystal, transparent and flawless, is in lot No. 11. Its edges are somewhat rounded; it weighs $1\frac{21}{32}$ carats, and measures from 4 mm. to 8 mm. in respective lengths. The finest green crystals are in lot No. 75. They are of a very dark copperas shade, and measure 2 mm. in diameter. Some of them are entirely made up of trihedral plates. The six stones weigh $\frac{20}{32}$ carats.

The fancy and odd-colored stones are in lots 73, 74, and 79. In lot 73, which contains eighteen stones, there is one rounded crystal measuring 18 mm. by 9 mm. which is transparent and of a faint absinthe-green color. In lot 74, which includes five crystals weighing $33\frac{9}{32}$ carats, there is a distorted octahedron, 15 mm. by 17 mm. by 9 mm. The crystals in this series are all smoky-green in color, and are all covered with raised and depressed triangular markings; together, they form an interesting color-suite.

The cube is represented by an opaque steel-gray crystal, 4 mm. in diameter, resembling the "hard round bort" in luster. In lot No. 5, we

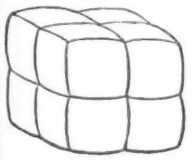

FIG. 20.

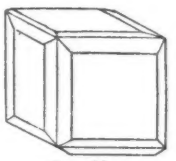

FIG. 21.

FIG. 22.

have a series of four cubes from 2 to 4 mm. in size, and weighing $11\frac{3}{32}$ carats. They are of a deep orange, almost chrome-yellow. Two of them are made up of eight cubes, and united in such a way as to give them the appearance of a bale of cotton (Fig. 20), and the others show the faces of the tetrahexahedron well developed, the cube face being the predominant one, however. There is also another lot, No. 76, of somewhat similar color. It contains 16 stones of a deep lemon yellow—instead of orange—varying in size from 1 mm. to 5 mm., and weighing $8\frac{29}{32}$ carats together. The color and luster of these two lots are almost resinous. In lot No. 8, there is a group of cubes with the tetrahexahedron (Fig. 21), the color of which is an opaque grayish-brown. The group measures 7 by 15 mm., one crystal being 7 mm. square. One of the gems of the collection is the spinel twin of the hexoctahedron (Fig. 22). It measures 16·75 mm., 18·5 mm., 18 mm., and is 6 mm. thick. It has depressed faces on both sides representing the octahedral face, and both these are beautifully marked with the triangular markings both raised and depressed.

FIG. 23.

No. 55 is a twinned hexoctahedron in which the one half crystal impenetrates the other. It weighs $2\frac{14}{32}$ carats (Fig. 23).*

The Quantities of Heat Generated by the Combustion in Oxygen of one Gram of Hydrogen and of Carbon.—These are stated to be as follows, the unit employed being the quantity of heat that is required to raise the temperature of one gram of water from 0 degree to 1 degree Centigrade: Hydrogen, 33,881 according to Andrews, and 33,462 according to Favre and Silbermann. Carbon—product Co_2—wood charcoal, 7900 Andrews, 8080 Favre and Silbermann. The percentage composition of a fuel having been ascertained by analysis, its calorific power can, therefore, be determined by calculation. Thus, in the case of a fuel consisting only of carbon and hydrogen, if we multiply the amount of carbon and the amount of hydrogen by the respective numbers expressing the calorific power of carbon and of hydrogen, and add the products, the sum represents the relative calorific power of the fuel. When oxygen is present in the fuel, a deduction has to be made, and if we assume that it is the hydrogen that is rendered ineffective by combination with the oxygen, then, as in water the oxygen is combined with one eighth of its weight of hydrogen, we have to deduct from the hydrogen of the fuel one eighth of its weight of oxygen. Calculated on the basis of the figures of Favre and Silbermann already given, the evaporation unit for hydrogen is 62·658, and for carbon 14·691.

* Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 19, 22, 23 are all natural size, and drawn from the diamonds.

THE PANAMA CANAL.

Written for the Engineering and Mining Journal by E. E. Olcott, M.E.

The information concerning the Panama Canal that I was able to gather during my trip across the isthmus may prove of some interest to your readers.*

The project of M. de Lesseps is to connect the Atlantic Ocean with the Pacific by a tide-water canal 46¼ miles long, with an average width at bottom of 22 meters (about 72 feet), a depth of 9 meters (29½ feet), and a general slope to the sides of 1 in 1. This would make the width at the surface of the water 40 meters. The plan also involves the construction of a basin for shipping at Panama, and a suitable turn-out in the canal for the passing of ships, also a tidal lock at Panama, made necessary by a rise and fall in the tide of about 7 meters. At Aspinwall, the tide rises only 50 cm. The canal is to be constructed from Aspinwall to Panama. The highest land is at Culebra, where it rises 100 meters above the proposed bottom of the canal, and from this point the land slopes rapidly down on both sides. The total excavation necessary is estimated at 120,000,000 cubic meters. It is quite possible, however, that this is the theoretical amount in which sufficient allowance has not been made for caves and slides, which have already occurred quite frequently.

Competent men on the isthmus consider that not more than one eighth, or say 15,000,000 cubic meters, of useful excavation had been made up to July 1st, 1886, and that $120,000,000 have been expended. This statement is enough to strike terror into the hearts of the projectors of this great enterprise. It should, however, be taken into consideration that the outlay in organizing the work of the company was very heavy, and will not have to be met again; although, on the other hand, it may be said that there are serious engineering difficulties still to be met, which render it impossible to calculate closely what the work will cost, or how much time will be required for its completion.

The foregoing is certainly enough to prove the fallacy of entertaining any hope of seeing a completed canal at Panama in 1890.

It is not proposed here to give more than a glance at the condition of the work on the canal; but a few of the difficulties in the plans, as now made public, may be mentioned:

1. The control of the waters of the Chagres River. 2. The heavy tropical rain-fall, and consequent interruption to work. 3. The unhealthfulness of the climate and scarcity of labor. 4. Making a cut 100 meters deep at Culebra. 5. The construction of the Panama basin and the Panama end of the canal. 6. Instability of the Colombian government. 7. The enormous amount of money still required to complete the work. 8. The frequent change of plans.

1. The waters of the Chagres. In the dry season, the Chagres River is a small, quiet stream; but a few hours' steady down-pour in the tropics during the rainy season is sufficient to swell it to a well-nigh uncontrollable torrent, rising from 30 to 50 feet above its ordinary level.

The great dam. It is proposed to hold back part of the torrents that fall by a dem at Gamboa, and to limit the discharge of the water from the basin thus formed to the carrying capacity of the Chagres River and new auxiliary canals. For this purpose, the outlet will be through a tunnel to be cut under the Cerro Azul. The dam is to be 1220 meters long by 43 meters high, and it is calculated that about 8,000,000 cubic meters of earth and rock will be required to form it. This material is to be simply dumped between the Obispo and Santa Cruz hills, and it is thought that by the use of clay on the inside of the dam, and rock on the outside, it will be impervious to water, and strong enough to resist the pressure. Its storage capacity will be about three billion cubic meters.

This may at first glance look like an easy project; but it does not seem to me that it is safe to rely on a filling of loose rock and earth resisting the pressure of 43 meters of water, even if the immense quantity of 8,000,000 cubic meters could be piled up into a dam. And moreover, it will be impossible to make this large filling in the short dry season of one year, and there is great danger of a partial filling being washed away by the first heavy rains. Furthermore, there may be great leakage from the proposed basin, through the seams, strata, or fissures. These and other difficult details present many obstacles to the construction of the dam, which is often spoken of as so simple a piece of work.

2. The rainy season. It is necessary to have seen tropical rain to appreciate how great a hinderance it is to outdoor work, both from the actual damage done by the floods, in causing slides of rock and earth, destruction of railroads, and from sickness among the men.

3. The unhealthfulness of the climate and scarcity of labor. This simple heading might be greatly enlarged upon; but the reader can well imagine the difficulty arising from such causes. Workmen from almost every part of the globe have been tried, but those best able to stand the climate are the negroes from the West Indies and vicinity; but their indisposition to work, and the difficulty of getting a sufficient number, render them a poor reliance. As all the contracts are let on condition that the canal company shall furnish the required number of laborers, and the necessary machinery, and as the company is unable to do this, it gives the contractors a standing excuse that exempts them from responsibility. Dredging machinery, excavators, and other labor-saving machines may be talked of, and are indeed very efficacious, but machinery, especially in rock work, needs to be supplemented by much manual labor, and excavators or blasts can not blow into thin air material for which there is, unfortunately, inadequate dumping ground.

4. The Culebra cut. Perhaps in the casual arrangement of the difficulties above enumerated, we have now come to the *bête noir*.

Let an open cut 100 meters deep be considered for a moment, and it is easy to imagine the difficulties that, under the most favorable circumstances, must arise in its construction. When we are told, however, that a large proportion of the rock in this cut is of a fissile and slippery nature, and underlain at some points by quicksands, will any engineer guarantee that the work can be effected in a quarter of a century? In fact, difficulties may arise that will render the cut impossible.

5. The eastern or Panama end of the canal. The sand brought in by every tide and the sediment brought down by the Rio Grande tending to fill up the basin, the construction of a tidal lock to counteract the rise and fall in the tides of 7 meters, and the extreme unhealthfulness of the mangrove swamps at this point, are some of the difficulties that nature interposes to the successful completion of the Panama section.

6. Insecurity of the Colombian government. Present difficulties are easily understood. Investors are wary about having their interests under such uncertain protection, and riots and petty revolutions have already interrupted the work on the canal to some extent.

7. The financial difficulties. The treasury of the company is now well-nigh empty, after an expenditure of say $120,000,000. M. de Lesseps has now applied to the French people for $120,000,000 more; but if this is raised, it will be but a small proportion of what will be required, and it is entirely problematical where the remainder will come from, or what delay the raising of money may cause.

8. Change of plans. From the incipiency of the work, there have been frequent changes in the plans and in the management that have hindered the progress considerably. The late Director-General, Mr. Boyer, is dead, and his successor has not yet come out to Panama. What changes he may institute, no outside observer knows. It is rumored, however, that he is an advocate of locks, and he may intend to overcome a part of the Culebra cut by such means. This may facilitate, to some extent, the work; but it will not fulfill the boast of M. de Lesseps that he would construct a tide-water canal. Of course, in the foregoing, it was only possible to discuss the plans as made known to the public, and no opinions have been ventured about changes that may hereafter be made.

The Panama Canal seems to me to present unparalleled difficulties, which make thoughtful men question the possibility of the successful accomplishment of the project. If completed at all, it does not seem possible that this century will see ships crossing on it from the Atlantic to the Pacific.

The amount of money it will take to complete the great work I feel unprepared to estimate; but that it will be several hundreds of millions of dollars, in addition to that already raised, seems almost certain.

In conclusion, I desire to express my general opinion as to the very unfavorable contrast that could be made between the project that has here been hastily discussed and the comparative simplicity of the Nicaragua Canal.

Would it not be a glory to the United States of America to have undertaken years ago this last-mentioned canal?

Even now, there is time to see ships navigating safely over a practicable lock system of canals, for a large extent on natural water-courses and under a benignant climate, long before the Panama Canal can be an accomplished work. Are we to see our government devoting its millions to further Mr. Eads's rather unpractical ship railroad, while such a feasible route as the Nicaragua lies promising us the laurels and the profits of successfully completing the much-needed oceanic connection, to aid the commerce of the world?

Perhaps an apology should be made for an engineer whose experience has been in mining offering such bold opinions on the subject of canals, and I desire to repeat that they are the results not of long consideration, but of casual observation and general reading.

CERRO DE PASCO, PERU, August 17.

*Some information was obtained from Mr. John Bigelow's report, made to the New York Chamber of Commerce, in February, 1886; but I am not in entire accord with the opinions therein expressed.

Rights of Foreigners in Mexico.—The new law promulgated on July 7th, relating to the rights of foreigners, provides that any foreigner may be naturalized in Mexico after two years' residence, upon furnishing proof that he is in the full enjoyment of civil rights in his own country, and that he has a business or an income sufficient to provide him the necessaries of life. The compulsory matriculation of foreigners is repealed.

Two of the Largest Castings in the World.—These are at Nara and Kamakura, Japan, the one at the latter place being 47 feet high, and the other, at Nara, being 53¾ feet from the base to the crown of its head. The statue at Nara is supposed to have been erected in the eighth century, but it was destroyed and recast about seven hundred years ago. In endeavoring to recast it, several mishaps occurred, and when at last success came, some few thousand tons of charcoal had been used. The casting, which is an alloy of iron, gold, tin, and copper, is estimated to weigh 450 tons.

Increase of Electricity by Increasing the Pressure of the Surrounding Air.—A German scientist, Mr. Walter Hempel, has made a discovery that may lead to important consequences. He has observed that the quantity of electricity furnished by a machine increases considerably when the latter works in an atmosphere of compressed air. A machine that under ordinary atmospheric pressure produces, for instance, 15 sparks a minute when turning at 400 revolutions, produces 32 when the pressure is increased to two atmospheres. By further increasing the pressure of the surrounding air, the quantity of electricity generated increases in considerable proportions. This curious phenomenon might receive numerous applications.

Cement Production in China.—A cement manufactory will be established in Macao. An agreement was signed last week by a solicitor of Hong-Kong with Bishop Medeiros for the concession, for a term of twenty-five years or more, of the pleasure-ground known as the Ilha Verde, the property of the mission, at a low rate—a royalty of $10 for every 100 tons of cement made, in addition to a small annual rental. The company to work the factory will have a capital of $50,000, and the head office will be in Hong Kong. No doubt, if the cement proves good, a large business and handsome profits will result.

Mineral Production of France.—Returns of the mineral production of France in the first six months of the year show that the output of coal was 9,696,573 tons, an increase of 319,862 tons on the same six months of 1885. The manufacture of pig-iron fell from 829,366 tons in 1885 to 763,225 tons in 1886; puddled iron rails, from 1468 tons to 480 tons; merchant iron, from 332,795 tons to 326,023 tons; sheet-iron, from 59,829 tons to 47,620 tons; steel rails, from 182,084 tons to 146,269 tons; and steel plates, from 25,638 tons to 22,987 tons. The production of merchant steel rose from 48,237 tons last year to 55,538 tons in 1886.

WHAT SPEED COSTS IN ATLANTIC STEAMERS.

In a review of two papers on Atlantic steamers recently read before the British Institution of Naval Architects, the *Engineer*, of London, says:

One of the first things to suggest itself about such ships as the Etruria or the Umbria is the vast cost at which their efficiency has been obtained—a cost that no one in his senses would have suggested a quarter of a century ago. We do not here so much refer to the outlay of capital on ships and engines, enormous as that is, as on the working expenses. Let us compare the performance of the Etruria with that of the Britannic. An interval of nearly ten years separates the construction of the two ships. The Britannic is still running. Her consumption is, we believe, about 90 tons of coal per day of twenty-four hours. Her passages average 8 days 9 hours outward and 8 days 2 hours homeward. Her consumption may, allowing for getting up steam, etc., be taken at 840 tons per voyage. The Etruria's fastest passage has been 6 days 5 hours 31 minutes. Her average we do not know, but we shall not be far wrong if we call it 6 days 12 hours. She burns 320 tons of coal per day of twenty-four hours, or, making allowance for getting up steam, etc, 2250 tons of coal on the trip. She makes the passage in a day and a half less than the Britannic. To save this day and a half, the consumption of coal is augmented by no less than 1400 tons. That is to say, the consumption has been nearly doubled to save thirty-six hours in time. This is startling enough, but figures yet more remarkable may be obtained. Let us take, for example, the Servia, and compare her with the Etruria. The best passage of the latter is, in round numbers, 6¼ days; the best passage of the former is, also in round numbers, 7 days. Using the figures given by Mr. John, of the Barrow Shipbuilding Company, and neglecting coal spent in getting up steam, etc., we have for the Etruria, $315 \times 6{\cdot}25 = 1968{\cdot}75$ tons; and for the Servia, $205 \times 7 = 1435$. That is to say, over 500 tons of coal are expended in shortening the passage by 18 hours. It may be urged that this is not all, and that the difference in the dimensions of the two vessels must be taken into account. But it so happens that the Servia is a larger ship than the Etruria, the displacement of the former vessel being 10,960 tons, and of the latter 9860 tons, or 1100 tons less. The indicated horse-power of the Servia is 10,300, and that of the Etruria 14,321. The latter ship has 1·45 indicated horse-power per ton of displacement; the former a little less than 0 94 indicated horse-power per ton of displacement.

The enormous increase in horse-power required to put on a knot or a fraction of a knot in speed explains the difference in the coal consumption of the two ships. Nor does the additional expense end here. It will be seen that not only can the Servia make a trip with 500 tons less coal than the Etruria, but she has available for some purpose or another 1100 tons more displacement. Part of that can be devoted to cargo, part to passenger space, even after due allowance is made for the greater weight of the hull. But, furthermore, the boilers and engines of the Etruria weigh a great deal more than do those of the Servia. The more carefully we investigate the construction and performance of the two ships, the clearer does it become that the price paid for reducing the time of transit between Liverpool and New York seems to be out of all proportion to the result gained. If such a ship as the Etruria can be made to pay her way, then the profit earned by such a vessel as the Servia must be very large, while that earned by the Britannic ought to be colossal. We believe that the truth lies between the two statements, and that the fastest ships in the Atlantic trade are partly supported out of the earnings of their slower sisters. Mr. John has hinted that the express Atlantic steamer of the future will carry no cargo; and this, we think, is more than probable. If any ship is built to beat the Etruria, it is clear that there will be no space left for cargo—engines, boilers, and coal demanding every ton of displacement available.

Prize for Design of a War-Ship.—A prize of $15,000 has been offered by the Navy Department for the best design of a war-ship.

Colombian Tariff.—In the new tariff schedule of duties for Colombia, South America, which goes into effect on the 1st of October, the rates of duty range from one cent to $1.20 per kilogram. The free list consists of articles for the use of the government, the property of the representatives of other governments, and the natural productions of such countries as may enter into reciprocal treaties. All articles not enumerated are dutiable at the highest rate, namely, $1.20 per kilogram. The importation of money of inferior standard is prohibited, as also the machinery for making money, arms, and munitions of war.

Canadian Mica.—It is within the past two years that mica of the best quality, known as muscovite, has been discovered in Canada in marketable sizes and in paying quantity, and to-day several deposits capable of being developed into fairly productive mines are known. Two in the county of Frontenac, province of Ontario, show well-formed, large crystals at the surface imbedded in white quartz; another in Wakefield, county of Ottawa, has been uncovered, and numerous "crystals" have been exposed, which, though small, are of excellent quality. In the Lake Superior and the Lake of the Woods districts, good mica has been discovered in paying quantity, and a company has been formed in Winnipeg to work an important deposit in the last-mentioned locality. In British Columbia, also a fairly good quality is known to exist, but no attempt has yet been made to prove the sizes of the available "crystals" or the extent of the deposits in that province.

A Hundred-Pound Rail.—The one hundred pound rail that Mr. C. P. Sandberg has recently recommended, and which we [the *Railroad Gazette*] discussed in our issue of June 25th, seems to have commended itself quite widely. We learn from Mr. Sandberg that the Belgian State Railroad has decided to adopt it, while both the Dutch and the Danish State Railroad have decided to increase their section from 63 to 80 pounds, all within six months of the suggestion. The Grand Trunk of Canada is also considering a trial of it, and any of our leading lines that have sections subjected to heavy traffic could not do a more sensible thing, in our judgment, than to try a few miles of it likewise. While Mr. Sandberg's section does not seem in all respects commendable, experience with a section of that weight would give a most valuable insight into what weight of rail was really most economical, by showing how a heavier as well as a lighter rail than was probably desirable would behave in service. The first necessity before doing this, however, is to have some adequate basis for "rational tests for rails," as to which the best of our railroad companies are now so sadly in the dark. Otherwise, the 100-pound rail sections are not likely to do much better than lighter ones, which is badly enough. We learn with satisfaction that the tests suggested in our issue of June 11th, 1886, are likely to be made the bases of experiment in Europe, if not in this country. Whether they have as yet been tried here we can not say.

The Telephone of 1664.—A quotation, not much known, from the works of Robert Hooke, published in 1664, would seem to show that the telephone is not such a modern invention as is generally thought. Hooke says: "And as glasses have highly promoted our seeing, so 'tis not improbable but that there may be found many mechanical inventors to improve our other senses, of hearing, smelling, tasting, touching. It is not impossible to hear a whisper a furlong's distance, it having been already done; and perhaps the nature of the thing would not make it more impossible, though that furlong should be ten times multiplied. And though some famous authors have affirmed it impossible to hear through the thinnest plate of Muscovy glass, yet I know a way by which it is easy enough to hear one speak through a wall a yard thick. It has not yet been thoroughly examined how far octocousticons may be improved, nor what other ways there may be of quickening our hearing, or conveying sound through other bodies than the air; for that is not the only medium. I can assure the reader that I have, by the help of a distended wire, propagated the sound to a considerable distance in an instant, or with as seemingly quick a motion as that of light, at least, incomparably swifter than that which at the same time was propagated through the air; and this not only in a straight line, or direct, but in one bended in many angles."

BOOKS RECEIVED.

[In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price?]

Mechanics of the Girder: A Treatise on Bridges and Roofs, in which the Necessary and Sufficient Weight of the Structure is Calculated, not Assumed; and the Number of Panels and Hight of Girder that Render the Bridge Weight Least, for a Given Span, Live Load, and Wind Pressure are Determined. By John Davenport Crehore, C.E. "Inveniam viam aut faciam." New York: John Wiley & Sons. 1886. 8vo, pages xiv+575 (including Index) and 124 Figures. $5.

War Department. Corps of Engineers, U. S. Army. *Report upon the Third International Geographical Congress and Exhibition at Venice, Italy*, 1881, accompanied by Data concerning the Principal Government Land and Marine Surveys of the World. Prepared and Submitted by Captain George M. Wheeler, Corps of Engineers, U. S. Army, Commissioner and Delegate, in Pursuance of Orders of the Honorable Robert T. Lincoln, the Secretary of War, and Published by Resolution of Congress. Washington: Government Printing-Office. 1885. Quarto, pages 586 (including Index), and 11 Plates (Maps and Sections of Maps).

Geographical Congress. Exhibition. Government Land and Marine Surveys. Works of Reference. Methods of Reproduction. Remarks.

Recent Locomotives. Illustrations, with Descriptions and Specifications and Details, of Recent American and European Locomotives. Reprinted from the *Railroad Gazette*. Enlarged Edition; including a Chapter on Compound Locomotives. 1886. Published by the *Railroad Gazette*, No. 73 Broadway, New York. Folio, pages [vi]+111, 525 figures unpaged, and an Index. $3.50 by express.

Scheffler's Fireless Locomotive, Honigmann's Soda Locomotive, Siemens's Electric Motor are described and figured.

Hand-Book of Mineralogy. Determination, Description, and Classification of Minerals Found in the United States. By J. C. Foye, A.M., Ph.D., Professor of Chemistry and Physics in Lawrence University, Appleton, Wisconsin. New York: D. Van Nostrand. 1886. 18mo, boards, pages 180 (including Index). 50 cents.

Modern High Farming. A Treatise on Soils, Plants, and Manures. By Francis Wyatt, Professor of Agricultural Chemistry, Chemical Analyst, etc.; Author of "The Chemistry of Sulphuric Acid Manufacture," "The Phosphates of the World," etc. New York: C. E. Bartholomew. 1886. 12mo, pages vi+94. (*No Index.*) $1.

Origin and theory of scientific agriculture; formation of the globe; composition of the earth; its principal rocks; chemistry of vegetation; minerals necessary and injurious to plant life; nitrogen, sources, manufacture, and application as manure; phosphates; potash; different kinds of manure; sulphur, sulphuric acid and its manufacture; superphosphates; chemical analysis. These are some of the principal topics discussed in this compact and useful little book.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

The following is a list of the patents relating to mining, metallurgy, and kindred subjects, issued by the United States Patent-Office.

GRANTED SEPTEMBER 7TH, 1886.

348,702. Machine for Making Brick from Dry Material. John A. Swanson and August W. Linten, Fargo, Dak.
348,709. Revolving Mold for Casting Tubes. George Adams, Waterbury, Conn.
348,718. Manufacturer of Copper Tubes. William Henry Brown, New York City, Assignor to Brown's Seamless Metal Company, Jersey City, N. J.
348,719. Method of Making Ordnance. William H. Brown, New York City, Assignor to Brown's Seamless Metal Company, Jersey City, N. J.
348 726. Derrick. George Driver and Frank Driver, Toledo, Ohio.
348,779. Ingot-Mold. John Sabold, Little Oley, Pa.
348,813. Device for Driving Tube-Wells. Alonzo D. Austin, Jackson, Mich., Assignor of one half to Norton M. Terry, same place.
348,818. Pipe and Rod Vise. Joseph G. Baker, Fernwood, Pa.
348 819. Chill for Use in Casting Cross-Heads. James Barclay, Erie, Pa.
348,832. Apparatus for the Purification of Gas. Alexander Delaney and William Simpkin, Richmond, Va.
348 838. Apparatus for Drying Brick. William L. Gregg, Philadelphia, Pa.
348,841. Apparatus for Utilizing the Exoansive and Contractive Power of Metals. Franklin E. Hainley, Martinsville, Ill., Assignor of one fourth to William G. Delashmutt, same place.
348,904. Apparatus for Cooling Oil to Extract Paraffine, etc. Norman McF. Henderson, Broxburn, County of Linlithgow, Scotland.
348 907. Tube-Clamp for Oil Wells. John Holly, Rouseville, Pa.
348,913. Gasometer. Otto Intze, Aachen, Prussia, Germany.
348,917. Carburetor to be Used in the Manufacture of Water-Gas. Fredrick C Kniese, Baltimore, Md.
348,943. Wire-Rope Drum Reel. William L. Young, St. Charles, Mo

PERSONALS.

Mr. Arthur F. Wendt sailed on the 15th inst. for Panama, *en route* to the Potosi mines of Bolivia, of which he has been appointed managing engineer. He expects to be away somewhat over a year.

Mr. E. G. Spilsbury leaves this week for his regular monthly tour of inspection through the Carolina gold districts. His address for the next ten days will be Haile Gold Mine P.O., South Carolina.

Mr. David T. Day, of Baltimore, has been appointed to succeed Mr. Albert Williams, Jr., as Chief of the Division of Mining Statistics and Technology of the United States Geological Survey.

Mr. Charles H. Hamill, of Frostburg, Md., has been appointed mine inspector, to fill the vacancy caused by the death of Denis Sheridan. Mr. Hamill is well known in the region, having been identified with the early history of the coal business in Alleghany County.

Mr. Robert E. Booraem, manager of the Morning and Evening Star Consolidated mining companies, of Leadville, Colo., has resigned, and Mr. H. S. Dickerman has been appointed in his place. Mr. Booraem will go to Montana, but has been retained by the companies as consulting engineer.

FURNACE, MILL, AND FACTORY.

Mr. M. V. Smith, of Pittsburg, Pa., is constructing six modified Siemens regenerative gas furnaces for Cartwright, McCurdy & Co., Youngstown, Ohio.

The Ewald Iron Company, of St. Louis, Mo., is adding a large plate mill to its new plant at Louisville, which will fully double its capacity.

A company has been formed at Chattanooga, Tenn., with a capital stock of $175,000, to erect a new hundred-ton blast-furnace at once.

A charter has been granted to the Kristone Dynamite and Powder Company, of Shoemakersville, Berks County, Pa. The capital is $25,000.

The Riverside Iron-Works, at Wellsburg, West Va., were totally destroyed by fire last week, involving a loss of from $60,000 to $70,000. The works will be rebuilt immediately.

The new puddling-furnaces at the National Rolling-Mill, McKeesport, Pa., twenty-eight in number, are rapidly nearing completion, and will probably be ready for work in about three months.

The Beaver Falls Iron Company, Beaver Falls, Pa., after many vexatious delays through the breaking of machinery, has got its sheet mills in good running order, and is working steadily day and night.

It has been necessary for the Linn Iron Company, Birmingham, Ala., to refuse several large orders, as its mammoth establishment is worked to its full capacity, filling the contracts on hand.

Ground has been broken for a new building at the Hartman Steel-Works, Beaver Falls, Pa., in which will be manufactured a new variety of wire picket fence, the Hartman Company having purchased the controlling interest in the patents.

The output in the month of August in the converting department of the steel-works of Carnegie Brothers & Co., at Braddock, Pa., was the largest in their history, being 21,083 tons, against 19,000 tons in July.

The Tennessee Coal, Iron, and Railroad Company has a third furnace in course of erection at South Pittsburg, Tenn. Julius and Max Sax, bankers, of Nashville, and James Woodward, President of the Hanover National Bank, New York, are also building two new furnaces at this place.

The Great Western Steel Company of St. Louis, Mo., has adopted the Hyatt pure water system to treat the water used for its steam-boilers and for other mechanical purposes. A few months ago, it ordered a Hyatt filter of 150,000 gallons daily capacity, and recently two large filters of the same make with a daily capacity of 500,000 gallons.

The Youngstown Steel-Works, at Youngstown, Ohio, which were started up a month ago as an experiment, have shut down and will remain idle until natural gas can be obtained for fuel, which will be about November 1st, when the works will in all probability be reopened. Meanwhile, the management is considering the advisability of adding a $7000 steam-hammer to the equipment.

At a recent meeting of the stockholders of the Westinghouse Air-Brake Company, of Pittsburg, Pa., the capital stock was increased from $600,000 to $3,000,000. The new stock is to be divided among the present holders in proportion to their holdings. This is owing to the large increase in the value of the company's assets. During the week, $75 was bid in Pittsburg for the new shares of this company, equal to $375 for the old stock.

The new copper coating industry that Messrs. John Plate & Son have established in Carondelet, Mo., has passed the experimental stage, it would appear, and is now an assured success. Since putting in their new Brush dynamo, to be used with the one previously operated, the working capacity of their plant is demonstratively larger by far, and the highest degree of efficiency has been secured. The permanency and value of the new industry are shown by the fact that the Missouri Car and Foundry Company has ordered the lining of fifty cars with the copper-coated sheets, instead of with galvanized iron.

The M. C. Bullock Manufacturing Company, of Chicago, Ill., reports a flourishing business. Recent shipments are to the Union Steel-Works, in Chicago, six winding-drums for dock-hoists. To a large iron mine in Ontario, Canada, a steam-pump, a Little Champion drill, and an outfit. To the new Union League Club in Chicago, two of Sweet's straight-line engines of 60 horse-power, to drive the 800 incandescent Edison light plant with which the club is brilliantly lighted. To the Lake Superior Iron Company, Ishpeming, Mich., several large pit-head sheaves, varying from 5 feet to 8 feet in diameter.

LABOR AND WAGES.

The Chesapeake & Ohio Canal has paid off the employés of the canal for the months of February, March, and July. This will conclude the payment of wages for the first seven months of the year, or up to August 1st.

The National District Assembly of Miners and Mine Laborers of the United States began its first annual convention at Indianapolis on the 15th inst. It represents a membership of 30,000. The order was organized in St. Louis in May, being that branch of the Knights of Labor who are miners.

COAL TRADE NOTES.

The Utah, Idaho, and Montana coal markets are booming, and persons connected with the Union Pacific state that this season's consumption will be larger than ever before. This is due to an increasing population and renewed mining and manufacturing activity.

ALABAMA.

According to reports, the Corona coal mine, which was recently sold to the Penn-Mobile Coal Company, of Mobile, as mentioned in our last issue, for $103,000, was offered to the same persons three years ago for $3000.

ILLINOIS.

The Consolidated Coal Company, of St. Louis, has purchased the following mining properties: The mines owned by August Lenz at Birkner Station, for $11,000; those owned by William Harding and Joseph Emery on the Southeastern Railroad, for $8500; and 220 acres of land owned by William Skellet, at Birkner, for $18,000.

The 60-inch disk fan manufactured by the Huyett & Smith Manufacturing Company, of Detroit, recently put into the mine of the Du Quoin Coal Mining Company, Du Quoin, is giving excellent satisfaction. It furnishes good ventilation for 125 miners. This fan is considered superior to the old style paddle-wheel fans in its operation and much more convenient for changing the direction of the current.

MISSOURI.

Mine No. 3, the largest in the vicinity of Huntsville, after being idle more than five months, has just reopened on the co-operative plan. The miners are to have the use of the company's machinery and to pay the latter a royalty of one cent a bushel, retaining for division among themselves the remainder of the profits.

PENNSYLVANIA.

ANTHRACITE.

Shortly before noon on the 15th inst., one of the boilers at the Philadelphia & Reading Coal and Iron Company's Merriam Colliery, near Mount Carmel, exploded with terrific force, displacing the entire nest, damaging the iron boiler-house, and sending *débris* flying in all directions. The head of the boiler crashed into the breaker engine-house, injuring there four men.

A vast fall of roof occurred between the diamond vein and the lower vein on the morning of the 13th inst. in the Marvine Colliery of the Delaware & Hudson Canal Company at Scranton, Pa. A number of men were entombed, and great efforts have since been made to rescue them. Up to the 15th inst., the efforts had been unsuccessful, and it is feared that the men are dead; but work will continue to recover the bodies.

BITUMINOUS.

After a two months' shut-down, the Keeling coal mines and coal road, near Pittsburg, resumed operations on the 14th inst.

Thomas Hackett & Co., of the Alpsville mines, have purchased 190 acres of coal, one mile from Guffy station, on the Baltimore & Ohio Railroad, and will build a siding to the place and at once develop their purchase.

The property and franchises of the Beech Creek Coal Company have been purchased by Cornelius Vanderbilt, Joseph M. Goggam, and Martin E. Olmstead. The company will be reorganized, the capitalization will be reduced, all charges scaled down, and a new board of directors elected. The same methods, however, and the same name will be retained.

COKE.

A charter has been granted to the Chicago & Connellsville Coke Company, of Scottdale, Westmoreland County, with a capital of $300,000.

WEST VIRGINIA.

The mines in Piedmont, as well as those at Elk Garden district, all started up on the 14th inst., with fair prospects of working full-time, if cars can be had. The scarcity of gondolas and box has caused considerable lost time at the mines in Piedmont.

GAS AND OIL NOTES.

Exports of refined, crude, and naphtha from the following ports, from January 1st to September 11th:

	1886. Gallons.	1885. Gallons.
From Boston	3,579,572	6,621,323
Philadelphia	102,325,330	103,019,718
Baltimore	12,214,954	8,196,395
Perth Amboy	3,734,513	.....
New York	267,686,962	260,879,412
Total exports	389,541,331	378,716,848

The Chief of the Bureau of Statistics reports the total values of the exports of mineral oils from the United States for the month of August, 1886, and during the eight months ended August 31st, 1886, as compared with similar exports during the corresponding periods of the preceding year as follows: August, 1886, $3,778,105; August, 1885, $4,576,504; eight months ended August 31st, 1886, $31,180,990; eight months ended August 31st, 1885, $31,701,636. These exports comprise about 99 per cent of the total exports in mineral oils.

ALABAMA.

Reports from Blount Springs state that about fifteen miles from there petroleum is issuing in streams from a fissure in the rock made by the earthquake.

MARYLAND.

The large iron tanks for the Salisbury Coal and Oil Company, Salisbury, have arrived, and a force of boiler-makers is engaged in putting them together. There are two tanks, each having a capacity of 7500 gallons of coal oil. It is proposed by the company to get oil in cars from the oil regions and draw it off into the iron tanks, after which it will be barreled. This is said to be the first enterprise of this kind ever started on the Eastern Shore.

MICHIGAN.

Oil has been struck at Manistee at a depth of 1920 feet, while drilling a salt well. The oil is said to be of the best grade.

NEW YORK.

The experimental well that is sinking at Wawarsing, Ulster County, has reached a depth of 1150 feet, and will be sunk to 2000 feet if necessary. Last week, the drill punctured a pocket of gas, which gushed from the well, and when a match was applied to it blazed up to a hight of fifteen feet, endangering the derrick. The gas continues to escape, but in small quantities.

PENNSYLVANIA.

The Pennsylvania Natural Gas Company has connected three new wells in the Hickory field with its

main from the Canonsburg District, making 17 wells in all which it has connected with the line to Pittsburg.

The steel mills of Carnegie, Phipps & Co., at Homestead, have cut off the supply of natural gas from the Philadelphia Company, and connect with the Carnegie line from Murrysville.

When at the end of the present season the streets are closed and the natural gas companies are compelled to cease active operations in pipe-laying, there will be not less than 17,000 connections that have been made with mills, factories, and private houses in Pittsburg and Alleghany. Of this number, at least 8000 were completed during the last year. From this business, the companies enumerated derive a revenue of nearly $2,500,000, of which the Philadelphia Company gets over $1,100,000, and the Chartiers Valley Gas Company about $350,000. The feature of the gas business during this season was the increasing of the capital stock, in which every one of the older companies and two of the younger ones took a hand.

A large gas-producing well has been struck one mile west of Darlington, in Beaver County, which opens a new territory in that county. It has been proposed to pipe the gas to Youngstown, Beaver Falls, and surrounding towns.

The Westmoreland & Cambria Gas Company is now within four miles of Johnstown with its pipe line, and will supply the Cambria Iron-Works within two weeks.

It is reported that the Canonsburg Iron Company, of Canonsburg, Washington County, has been compelled to suspend operations at its works, owing to the failure of natural gas. There are several natural gas wells in Canonsburg, and they have been considered among the largest in Western Pennsylvania.

WEST VIRGINIA.

The Wheeling Natural Gas Company's fifth well in the Hickory District, Pa., has come in. It gauges higher than any of the other four, all of which are heavy producers. The company has three other wells ready to come in within a month, after which no more will be drilled this fall, as these eight will be amply sufficient to supply gas to Wheeling.

GENERAL MINING NEWS.

The total shipments of ore from Ashland during the season of 1886, and the week ended September 8th, were as follows:

GOGEBIC DISTRICT.

Ashland	43 960	Nimikon	794
Aurora	54.530	Odanah	5,322
Iron Chief	7.851	Pabst	12,698
Bessemer	3.590	Puritan	5.946
Brotherton	8,509	Sunday Lake	5,670
Colby	168,198	Superior	2,021
Iron Chief No. 2	530	Trimble	4,625
Iron King	14,668	Pewabic	55
Ironton	10,431	Valley	1.056
Germania	11,720		
Kakagon	8,697	Total ore from Ashland	465,533
Norrie	91,757		
East Norrie	8,175		

ARIZONA.

GILA COUNTY.

OLD DOMINION COPPER MINING COMPANY.—This company's property at Globe City, including smelters and mines, has passed into the hands of Mr. William Keyser, of Baltimore, by expiration of the term allowed by law for redemption. Dr. Trippel remains superintendent.

YAVAPAI COUNTY.

ST. LOUIS-YAVAPAI.—This company has purchased the Tip Top mine and dumps. There are said to be 20,000 tons of ore, averaging from $20 to $30, on the dumps, which the new company claims that it can reduce to concentrates by the Golden Gate concentrators at a cost of $2.50 a ton. The mill has been moved from Gillett to Tip Top, and erected in close proximity to the dumps. It has been changed from a ten-stamp, dry-crushing roasting mill into a wet crushing, concentrating plant, thus increasing the capacity from 10 to 30 tons a day.

VULTURE.—This mine has, it is said, been sold to W. J. Kauffman, of St. Louis, for $100,000.

ARKANSAS.

MONTGOMERY COUNTY.

B. F. SMITH SMELTING AND MINING COMPANY.—This company has been organized at Hot Springs. It will erect a 120-ton smelter.

CALIFORNIA.

AMADOR COUNTY.

MCKAY.—Mr. A. P. Minear has purchased this mine in Hunt's Gulch. It is on the great mother lode of gold-bearing quartz of the State, which traverses this county in a northwesterly and southeasterly direction. On this mother lode are some prominent mines, among them the Keystone Consolidated and the Plymouth Consolidated. At the mine, ample water for both hoisting and milling is secured by the proximity of the Amador Canal, only three hundred yards distant. The developments consist of one shaft ninety feet deep, one eighty feet, and two forty feet each, all in good strong ledge matter of favorable appearance. The new owner is now sinking a main working-shaft, erecting new hoisting-works, etc.

BUTTE COUNTY.

The case of Gregory and Singer against Pershbaker and the Magolia Gold Mining Company is arguing before Judge J. E. Williams of El Dorado County, who is trying the case for Judge Freer of Butte County, in San Francisco. The suit involves the title to a very valuable mine in this county.

BIG BEND TUNNEL.—It is reported that this tunnel, near Oroville, which was completed this spring, and at which they had been working nearly four years, as mentioned in our issue of May 8th, is not large enough to carry all the water in the river, and several months' work will be required before the taking of gold from the bed of Feather River can begin.

CALAVERAS COUNTY.

SATELLITE.—A San Francisco company has taken hold of this copper mine in Campo Seco. The water is pumping out of the old works, and as soon as that is completed, a 50-foot water-wheel will be built to run the machinery. This company has worked other low-grade copper mines in this State, and is satisfied that the mines in Campo Seco can be made to pay by the roasting and leaching process.

MONO COUNTY—BODIE DISTRICT.

Reports for the week ended the 5th inst.:

BODIE.—Good ore is extracted from the middle uprise above the 400, from the Bruce vein. Uprise No. 1 from 700 is extended 13 feet. There is rich ore in the top of it.

BODIE TUNNEL.—They are extracting ore from the 150, 200, 300, 400, and 500-foot levels north of the tunnel. The stopes look favorable throughout the mine.

DUDLEY.—In the south drift, the 700 level, the ground is very soft, mixed with quartz and clay, and has to be timbered very closely.

MONO.—Ore is extracted below the 700 level.

PLUMAS COUNTY.

ARCADIAN.—This mill at Greenville has started on custom ore from the mines of the Forest King Company. It is expected that the mill will run as long as the roads will admit of hauling over them before winter begins.

CRESCENT.—The water in the shaft has been successfully removed, and further sinking will be continued. The bottom of the shaft looks exceedingly well.

PLUMAS CONSOLIDATED.—The recent development of the Union chimney, by a drift west from the main shaft, is showing some fine ore, and in sufficient quantity to enable the mill to be mainly supplied from that point. This reopening of the Union with the Indian Valley proper virtually adds another mine to those now worked in this district, and outlines a good future for the property of this company.

SIERRA COUNTY.

EXCELSIOR.—The concentrator will probably be in running order by the end of this month, and ready to receive the 1000 tons of ore now on the dump.

CANADA.

PROVINCE OF ONTARIO.

The first shipment this season of Canadian iron ore to Lake Erie ports has arrived at Cleveland. It consisted of 540 tons. Since last March, the mines on the Central Ontario Railroad, Ontario, owned by a Cleveland syndicate, have been shut down, owing to a cessation of demand. The Cleveland *Iron Trade Review* says that during 1885, 10,508 tons were shipped from these mines, of which 100 tons went to Bessemer, Pa., and the remainder to Cleveland. There were mined, however, during 1885, 32,059 gross tons, of which 3752 tons were second-class ore. It will thus be seen that 21,551 tons were added to the stock-piles last year, besides the amount mined from January 1st to March 31st inclusive, this year. It is understood that the cessation of demand for this ore was owing to the presence of titanium, which rendered roasting necessary, and that no more ore will be mined until that on hand is first roasted. It is also known that the ore already delivered on Cleveland blast-furnace docks is roasted before using.

BEAVER.—A rich strike is reported in this silver mine near Port Arthur. The vein itself is four feet wide, and there seems to be a streak of pay dirt about nine inches wide that runs from 1000 to 4000 ounces of silver to the ton.

LITTLE PIG.—At this mine, which adjoins the north end of the Silver Creek mine and the Beaver mill on the west, active operations have begun.

PORCUPINE.—This mine has a large show of silver in all its workings, and immense quantities of ore in sight.

RABBIT MOUNTAIN.—The drain from the small lake to the mine is completed, and more water will be at the disposal of the company.

PROVINCE OF QUEBEC.

COLERAINE.—It is reported that this company has sold an asbestos mine to a Scotch company for $70,000 cash. The company has still 5000 acres.

ST. LAWRENCE CORPORATION, LIMITED.—This company has been organized in London with a capital of £100,000, 100,000 shares of £1 each. The object is to purchase, lease, or otherwise acquire, hold, and work timber and other lands, mines, minerals, hereditaments, and premises in the Dominion of Canada, and in particular the lands and estate known as the Mille Vaches Estate, in the county and district of Saguenay, bounded in front by the river St. Lawrence and behind by the public domain, on the south by the township of Iberville, and on the north by the township of Laval, together with all the timber, and all minerals on and under the surface, the houses, and other appurtenances, and all rights, and to acquire and undertake all or any of the assets, debts, and liabilities of the Dominion of Canada Freehold Estate and Timber Company, Limited.

COLORADO.

CLEAR CREEK COUNTY.

A correspondent writes us that a syndicate is forming in St. Louis to work the mines known as the Dumont mines. Some St. Louis people are already interested in these mines, which are not prospects, but are developed to such an extent that their value is a matter of fact, subject always to careful examinations. They consist in part of the Neath, Pioneer, and Benton, all of them in a high state of development, with work still going on. They carry free gold, some copper, and no silver. The Neath is reported to have about $80,000 free-milling gold ore in sight. The Benton is down to the 600-foot station, and it is estimated that by October no less than 55,000 tons, average value $12 a ton, will be ready. The Benton is not free-milling, and will require treatment other than milling, probably concentration. The Colorado Central Railroad runs directly to the mines, which are only 35 miles from Denver, and are advantageously situated. John M. Dumont, one of the owners, is well known throughout the State. He opened the Hukill and the Freeland mines, both large producers. The syndicate above referred to will work them for what they will pay. No stock will be issued to the public. It is simply an investment of St. Louis capital in good mines, whose present value warrants the purchase and future development. Prof. Regis Chauvenet, of the State School of Mines, Golden, Mr. Le Neve Foster, and others have visited these mines.

FREELAND.—During August, there were produced: Gold, $21,031.13; silver, $3947.33; copper, $209.61; total, $25,188.08.

PLUTUS.—The production for August was: Gold, $3849.36; silver, $2646.20; copper, $101.85; total, $6597.41. A powerful air-compressor, run by water-power, will soon be in operation, and will furnish abundant power to run the power drills at little cost, and will considerably increase the product.

SEVEN THIRTY.—All the drifts show ore, and continued shipments are looked for from this mine, which has been for many years a steady producer of high-grade ore. It is the intention to sink the main shaft 1000 feet, to connect with one of the lower tunnels.

SEVEN TWENTY.—Arrangements are making by St. Louis people for the organization of a company with a capital of $100,000 to work this mine, which is on Seaton Mountain. The mine has been in operation for some time past, and is opened by shafts and drifts over 1200 feet. It is thoroughly equipped with hoisting machinery, and is ready to be operated.

STEVENS.—A contract to drive the drift, ninth level, 100 feet farther east has been let, and work

begun. This will make the level 500 feet long. Large large bodies of galena ore have been opened in the last 150 feet of drift, and the breast shows a seam of six inches of ore, carrying 50 per cent lead and 30 ounces of silver.

RED ELEPHANT.—The properties belonging to this company on Red Elephant Mountain were sold at sheriff's sale on the 11th inst., and were bought by "Diamond" Joe Reynolds for $29,300, the amount of the judgment.

CUSTER COUNTY.

BANGILL-BESS.—This mill has started up with the new Sturtevant pulverizer and crusher in place, and is running smoothly.

BULL-DOMINGO.—A hoisting engine and plant, having a capacity for hoisting 2000 feet, have been placed in this mine.

SECURITY MINING AND MILLING COMPANY.—The Ouray *Solid Muldoon* states that this company's property is in the hands of Custer County's sheriff on an attachment suit in favor of Scott, Cory & Holthoff, of Denver.

FREMONT COUNTY.

The long-continued litigation over the zinc mines at Cotopaxi was brought to a close, in Denver, on the 10th inst., Mr. Solteil getting possession and title to the mines.

GILPIN COUNTY.

CALIFORNIA GOLD.—The reorganization of this company, under the name of the New California, Limited, is going on in England. The venders' claim and all other liabilities here have been discharged.

GRAND COUNTY.

John Hanson & Co., who in company with other parties had been sinking on the Horseshoe claim, has purchased an interest in the Carbondale and other properties owned by Hanchett & Co., at Carbondale. The new arrangement provides for the immediate resumption of work, which has begun on the Carbondale shaft to sink 125 feet farther unless pay is encountered. This will make it 200 feet deep, and will probably relieve the suspense of those interested in the camp, in which for some time past but little work has been going on, on account of difficulty with water.

At Wescott's camp, work was also stopped on account of the trouble with water; but work is to be resumed at once. The company has begun work on the Star of the West and Mattie claims, and it is nos known on which the work will be resumed. It it probable, however, that their attention will be devoted to the Star of the West, the most promising of the company's prospects, and one of the best in camp.

LAKE COUNTY.

From the Leadville *Herald Democrat* we condense the following:

ADAMS.—The executive committee inspected the books and accounts on the 9th inst. The members all reported having found every thing in a most gratifying and satisfactory condition. The balance-sheet showed $53,181 on hand, and about $12,000 worth of ore at the smelters unsettled, aggregating a surplus fund of $65,181. The production for August realized over $42,000.

A. Y.—An additional hoisting plant has been purchased, which will at once be placed on the No. 3 shaft, to facilitate the hoisting of ore from the new sulphide body.

BREECE.—The average daily shipments are forty-eight tons. The ore, as we have mentioned before, is shipped to the Colorado Coal and Iron Company at Pueblo, which has contracted for it. It is quite likely that the present contracts may lead to the steady shipment of iron to the works at Pueblo.

CHRYSOLITE.—The mill has just completed a test run on 350 tons of ore for the Small Hopes Mining Company. The results were fair, and it is possible that a contract will be made with this and other companies for the treatment of a lot of dry low-grade silver ores by amalgamation.

DOLPHIN.—The lessees of this mine, on Fryer Hill, are sinking a shaft, the present depth of which is about 320 feet. The bottom of the shaft is penetrating a mass of intrusive porphyry, beneath which it is expected a lower and productive ore zone will be disclosed. The advisability of sinking to a great depth on Fryer Hill proper is a question upon which few persons agree. The north shaft of the Dunkin, the Roberts shaft of the Chrysolite, the deep shaft of the Robert E. Lee, and other shafts have been sunk at various times, without meeting with success. On the other hand, encouragement is presented in the shaft sunk on the May Queen property, on the south side of Little Stray Horse Gulch, where a very large and profitable body of ore has been encountered.

FOREPAUGH.—It has not yet been decided what action the company will take about draining the mine. It is claimed that the Forepaugh has been bearing the burden of expense in draining East Fryer Hill, and that the pumps will not be started up again until the adjoining mines consent to bear an equitable proportion of the cost of lifting the water.

HENRIETT.—This mine, after nearly a year's forced idleness, is again shipping largely. For many months past, the shipments were confined to small lots of ore, extracted by lessees. During this period, work was vigorously prosecuted on the so-called Maid of Erin shaft, which, however, is on the Henriett ground, and near the line between the properties. This shaft was sunk to the lower ore zone. When the second ore-body was struck, a great flow of water was encountered, and a $15,000 pumping plant had to be provided. Then followed other obstacles, still further delaying the profitable operation of the mine. Finally, after many months of expensive work, the large ore-breasts have again become available and the extraction of mineral resumed. The mine has been shipping about forty to sixty tons a day. The bulk of the mineral is a fine carbonate ore, averaging 40 per cent in lead. Occasionally, seams and bunches of iron ore are encountered.

LADY ALICE.—Mr. James W. Gaff, the owner of this and other lodes on the western slope of Breece Hill, between the Park and Mike & Starr mines, has decided to develop his properties at once, and ordered a plant of machinery, embracing two 80 horse-power boilers, a 50 horse-power hoister, pumps, and other equipments.

LEADVILLE CONSOLIDATED.—During August, there were shipped out 300 tons of ore, resulting in a net profit of about $6000. The property is expected to do even better this month.

LITTLE CHIEF.—Arrangements are making for the boring of a drill-hole in the bottom of the Daly shaft. This project will determine the advisability of sinking the shaft in search of a lower ore zone. The expense connected with this kind of work is light, as persons at Leadville owning a good drill are willing to contract for the undertaking at a nominal charge. The mine is still worked entirely by lessors, and is doing very little, the product being small and composed principally of iron. A new lease has been let on the southwestern portion of the old workings.

MORNING STAR.—Mr. Robert E. Booraem, the former manager of this company, has suggested to the directors the advisability of accumulating a fund for future exploration work. The mines of the company are at present doing very well, and earning considerably more than the customary dividend of 25 cents a share. While the present ore-body holds out, the production of the mine will be quite large, and satisfactory returns will be made to the stockholders. Without new work, however, the property can not be kept in bonanza, and the accumulation of a good fund is suggested while the mine is paying largely, for the thorough exploration of the virgin territory embraced within the company's property. The Morning Star controls a large acreage of promising ground to the westward of its producing section, which warrants opening, and may possibly return very large results with proper development.

SMALL HOPES.—There were shipped during August about 2000 tons of ore, averaging between $70 and $80 a ton. Not a few lots were settled for during the month that returned from 140 to 177 ounces in silver to the ton.

TIP TOP.—During August, the mine shipped 1372 tons, returning $56,221, or an average of over $43 a ton. At starting up work, the owners contributed $30,000 for the development and improvement of the property. Up to the present time, about $40,000 have been charged up to the improvement and development fund and $50,000 have been paid in dividends, leaving a reserve of $30,000, or the original contribution. The showing of the property is certainly remarkable, and few mines have within the first two months after mineral was discovered, paid for a handsome hoisting and pumping plant, development-work, and a $50,000 dividend. The danger from water has abated largely, and development-work is progressing.

YANKEE DOODLE.—Work has again been resumed in the lower or second ore plane of this mine, on Carbonate Hill. This second ore zone is over 600 feet from the surface where disclosed, and 200 feet beneath the regular lime-porphyry contact. It shows fine carbonate of lead ore, running well in silver, in bodies of from six to eighteen inches. So far, about fifty tons of ore have been extracted from this lower ore plane, the returns from which yielded some profit above the cost of mining. It is intended to prospect the second contact thoroughly, in search of heavier deposits of ore than have so far been found.

PITKIN COUNTY.

CHICAGO.—This gold mine has been sold to an Aspen syndicate, composed of Hon. W. R. Root, Fred G. Spratt, George C. Vickery, and others, for $12,000 cash. A large force has already been put upon the mine, and extensive work will be prosecuted vigorously.

RIO GRANDE COUNTY.

LITTLE ANNIE GOLD MINING COMPANY.—The suit of George D. Nickel *vs.* the Little Annie Gold Mining Company was tried in the United States Court at Del Norte last week, resulting in a verdict for the plaintiff for $1730. The case was one of trespass in cutting timber at Summitville. The defendant gave notice of a motion for a new trial to be argued at Denver.

SAN JUAN COUNTY.

SOUTHERN COLORADO BISMUTH AND SILVER MINING AND MILLING COMPANY.—In the suit to test the validity of the trust deed on this mine, under which the property was taken possession of by the holders of the trust deed, as mentioned in the JOURNAL of September 4th, before the District Court at Silverhorn, A. J. Hamilton and his associates, who now have possession of the property, have filed a demurrer to the complaint, and there is a chance of its being carried over to the spring term.

SUMMIT COUNTY.

SILVER WAVE.—The sale of this mine, near Montezuma, for $65,000, to Chicago parties, is reported.

ROBINSON CONSOLIDATED.—No special effort is making to increase the output. The principal production is obtained from the upper levels, the large ore-bodies in the extreme lower portion of the mine being too low to permit extraction at a profit, at the present rates of silver.

SEMINOLE.—The Little Bonanza mill has been started on a test run of two weeks on Seminole ore. If satisfactory, the sale of this group will be made to persons who will erect a large mill and work the property for all it is worth.

WHEEL OF FORTUNE.—Active operations have been resumed on this mine on Sheep Mountain. A large concentrator is in course of construction that will greatly increase the output.

DAKOTA.

CASS COUNTY.

The location of smelting-works at Fargo is considered a certainty. Messrs. Rose and Cull, of Birmingham, England, are at Fargo, accompanied by Messrs. Kent and Winford. Part of the machinery has already been ordered, and the company guarantees to put in a plant this fall. This, it is believed, is the beginning of a permanent manufacturing enterprise. The ore will be floated to Fargo by river from Lake Winnipeg. A process has, it is said, been secured by which gas from Dakota coal will be used for smelting purposes.

LAWRENCE COUNTY.

An important transfer of mining property has been made at Deadwood. The property is between the Yellow and Grizzly gulches, opposite the Savage tunnel, and consists of six locations, a placer lot containing 20 acres, and a water-right. The property is on an airline with the Homestake, Deadwood-Terra, and Father de Smet, and is on the hill that the late Samuel McMaster was wont to say contained a big mine, but that it was probably a considerable distance down to the ore.

CALEDONIA.—The official report, dated the 6th inst., shows that the drift on the east vein has advanced 9½ feet; total, 67½ feet. They have started an uprise on this vein to connect with the 200-feet level. They are cutting out near the shaft for a water-tank preparatory to sinking the shaft deeper.

GRAY EAGLE COPPER AND SMELTING COMPANY.—At the annual meeting, it was decided to proceed with the development of the mine until a quantity of ore was on the dump and then to blow in the smelter.

MINNESOTA.—Mr. O. Garrison, of St. Louis, has been investigating this mine with the view of pur-

chasing. The mill has started up to make a test run of from 50 to 110 tons of ore. The company has already run over 3000 tons, and the rock averaged $4.54.

RICHMOND-SITTING BULL.—A force of miners at work have broken through from the Richmond to the Sitting Bull workings, and ore will be taken out through the tunnel of the latter mine. The galena-bearing ore will be shipped.

UNCLE SAM.—By this time, the entire sixty stamps were to be in operation. The output comes from the intermediate and first levels, and is of fair, paying quality.

SITTING BULL.—Colonel Davey, who will operate the sampling and smelting-works at Galena, which were recently turned over to O. J. Salisbury—Colonel Davey being unable to redeem this property—expects to have them in operation soon. Considerable overhauling and repair, involving an outlay of $2000, are necessary to place the smelter in good condition. Buying ore will soon begin, and he will also be prepared to purchase all offered in lots from 500 pounds up, practically on the Omaha basis, and yet at such variation that ore not rich enough to pay to ship to Omaha can be sold to him to advantage.

IDAHO.

The Northern Pacific Railroad is about to award the contract for building the first thirty miles of the proposed Helena, Boulder Valley & Butte road. This will carry the line well into Boulder Valley and to a point ten miles beyond Boulder City. The company is building another branch that leaves the main line twenty miles this side of Spokane Falls. This is the Spokane & Idaho Railroad, and is intended to develop the Cœur D'Alene mines.

ALBION.—Thomas Fopham has bonded this mine, Cassia County, for six months for $3000.

ALTURAS GOLD.—The production for August has been 1075 ounces of gold.

BAYHORSE.—The smelter has blown in. It is the intention to make a long run.

CARRIE LEONARD.—The new concentrator at this mine, Smoky, is completed, and now running to its full capacity. There is a large quantity of good concentrating ore at the mine, and it is run through the mill as rapidly as possible. The concentrator has a capacity for fifty tons every twenty-four hours.

HELENA CONCENTRATOR.—This company, whose works are at Wardner, in the Coeur d'Alene District, has a contract to mine and ship 50,000 tons of ore, and is completing arrangements to mine and transport two hundred thousand tons of ore from the Sullivan and Bunker Hill mines alone. It is scarcely one year since these mines were found. They are about three quarters of a mile above the town of Wardner. Northeast and southwest on the same belt, are other mines showing equally well, and in different stages of development.

IDAHOAN.—Seventy-five men are employed, and the property continues to show an increase of ore as depth is attained.

KENTUCKY SMELTING AND MINING COMPANY.—At Milo, one mile below Wardner, this company has a twenty-ton water-jacket furnace nearly ready to begin running permanently. A test run has been made that is said to have been satisfactory.

MINNIE MOORE.—It is reported that this property at Bellevue, with which the English company had so much trouble, has gone back into American hands, a St. Louis company having purchased it for $600,000. The new owners are said to have possession. There is no doubt room for a reduction as to the figures at which it is said this mine was sold.

ONTARIO.—This concentrator, at Ketchum, was closed down on the 4th inst.

RAMSHORN MINING AND SMELTING COMPANY.—This company has reduced wages from $3.50 to $3 a day, and board from $8 to $7 a week. The reduction went into effect on the 1st inst., and all the miners quit work. Owing to the scarcity of work, the company will, it is said, be able to hire all the miners they want at these figures.

SILVER WING.—A two-thirds interest in this mine has been sold to George H. Clark and Owen Long, the owners of the remaining third, and A. J. Crook, of the Omaha Company, for $6000. The mine is on Ramshorn Mountain, Bay Horse Mining District. It has been worked almost continuously for the past four years by a small force of men, and during that time has produced between $75,000 and $100,000.

TIP TOP.—This gold mine, it is reported, which was recently bonded by Captain Lusk and others for $15,000, has now been bonded by Mr. Murphy for $60,000. If the mine proves satisfactory, he will, it is said, bring it on the New York market.

ILLINOIS.

COOK COUNTY.

Messrs. Billings, Sheldon & Co. have opened at Chicago this week what they call the "Gogebic Mining Exchange." They will deal in iron mines and stocks, making those from the Gogebic range a specialty.

CHICAGO & AURORA SMELTING AND REFINING COMPANY.—This company has been organized at Chicago with a capital stock of $100,000; incorporators, H. I. Higgins, E. F. Eurich, William H. Van Arsdale, J. B. Arnold, and Barton Sewell.

KANSAS.

CRAWFORD COUNTY.

GRANBY.—This company has doubled the capacity of its zinc-works at Pittsburg, and expects during the coming year to produce $350,000 worth of spelter. These works are now the most extensive in Pittsburg.

KENTUCKY.

BOYD COUNTY.

FOREST CITY.—This company has been organized with a capital of $3,000,000, shares $25 each. The object is to purchase or lease mineral lands and to work the same by purchase, lease, or royalty, to bore for natural gas, oil, or other volatile matter, and to carry on the general business of mining. The principal office will be at Cleveland, Ohio.

MASSACHUSETTS.

MIDDLESEX COUNTY.

The mining fever has spread from Abington to Malden, from which the news comes of great excitement owing to the discovery of a silver and lead mine, on the property of Warren T. Lincoln. Men are to be employed to "experiment" (as the report says) on the vein, which, of course, is "long, wide and rich" from a first view! The land is at the foot of Baker's Hill, which covers a large tract.

MEXICO.

CARDENAS.—The company has notified its shareholders to pay their subscription to the capital of this mine in the State of Sinaloa, before the latter part of September.

COPALA.—This mine, in the State of Sinaloa, on which work was so long suspended, has been reopened. Improved machinery has been built.

MULATOS.—Negotiations are pending for the acquisition by an English company of this mine, said to be one of the most famous properties in Mexico. The Mulatos is actively worked. The price has been named at something less than two years' purchase of the profits estimated to be realized in twelve months.

MICHIGAN.

COPPER MINES.

The following statement gives the products of the mines mentioned for August and for eight months, and a comparison with the outputs of the same mines in the two preceding years:

	August.			Jan. 1 to Aug. 31.		
	1886.	1885.	1884.	1886.	1885.	1884.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Calumet & Hecla	2,790	2,667	2,361	20,150	20,220	17,517
Quincy	321	335	334	1,995	1,854	2,044
Tamarack	200	....	....	1,620	1,494	1,403
Franklin	202	189	176	1,561	...	....
Atlantic	212	205	182	1,502	1,612	1,445
Osceola	165	....	200	1,295	890	1,667
Huron	101	102	118	861	885	702

CALUMET & HECLA.—The last of the twelve Leavitt heads in the Calumet & Hecla dressing-works at Torch Lake is nearly completed, and will be ready for operation by October 1st. At the present time, ten heads can readily work up the rock sent to mill, so that when the twelve are kept busy, a large increase in the output will be the result.

PENINSULA.—The appearance underground is said to be so favorable that the working force will be largely increased at an early date. The mill will start up soon.

IRON MINES.

The following statement, given by the Marquette *Mining Journal*, shows the amount of iron ore shipped from the ports of this district for the season of 1886, up to and including Wednesday, September 8th:

	Tons.
Marquette—Marquette District	615,022
St. Ignace	45,527
Escanaba—Marquette District	402,213
Menominee District	604,686
Grand total of lake shipments	1,667,448

Shipments of Pig-Iron.

Pioneer furnace	4,380
Deer Lake furnace	900
Vulcan	8,439
	13,719

The gain over the shipments from the above ports during the same period in 1885 is 222,709 gross tons.

DEXTER CONSOLIDATED.—This company has been organized with a capital stock of $750,000, divided into 30,000 shares, and the amount of cash actually paid in on capital stock is $90,000. The cash value of the company's property, real and personal, already conveyed to the corporation amounts, it is said, to $100,000. Incorporators: D. R. Shaw, Sigmund Rothschild, Don M. Dickinson, Alexander H. Dey, Samuel Heavenrich, of Detroit, and others of Marquette and Dexter. The offices of the company will be in Detroit, and the scene of its operations in Marquette County.

LAKE SUPERIOR.—The prospecting-shaft of this company has reached a depth of over a hundred feet, and passed through the ground so filled with boulders. The dirt has changed to a bright red, and it is thought the ledge will soon be reached. The company will sink on the ledge and put a diamond drill at work to determine something as to the extent of the ore-body. A stand-pipe is driving in the low ground several hundred feet west of this prospecting-shaft, with the intention of placing a drill in operation there.

MINNESOTA.

ST. LOUIS COUNTY.

MINNESOTA IRON COMPANY.—During the season of 1886, and for the week ended September 8th, there were shipped from Two Harbors 211,954 tons of ore, from this company's mines.

MISSOURI.

SAINT LOUIS COUNTY.

Metallurgical and ore-testing works are building at St. Louis under the direction of Prof. W. B. Potter, who is in charge of the Department of Mining and Metallurgy at Washington University, in that city. The works, when completed, will be under the control and management of the department. A first-class mill man is to be engaged as foreman of the mill, and the labor will be mainly supplied by students of the Mining Department. Custom work will be done, and the receipts will go toward the financial support of the establishment. The machinery will be furnished by Messrs. Fraser & Chalmers, of Chicago. Quite a "boom" has been going on in mining affairs at St. Louis for some time, and to this fact is probably due the erection of these works, which will supply a want in this direction.

MONTANA.

BEAVER HEAD COUNTY.

HECLA CONSOLIDATED.—The company has notified the burners that no more charcoal will be received after the 10th inst. The company gave them notice some time ago, in order that they might clean up their kilns by the time of the shut-down. The company's iron mine at Norwood stopped operations on the 1st inst. The works are now closed down.

NEVADA.

ESMERALDA COUNTY.

MOUNT CORY.—Work, which has been going on for some months past, will now be carried on on a larger scale. A shaft will be sunk and the ground thoroughly prospected to a depth sufficient to prove the value of the mine. A few years ago it attracted considerable attention, and was looked upon by experienced miners as a very promising property. A mill was built and work was carried on for some time. But, owing to various difficulties, it was eventually shut down.

STOREY COUNTY—COMSTOCK LODE.

The following is condensed from the Virginia City *Chronicle:*

ALTA.—Operations are concentrated in advancing the north drift from the Lady Washington shaft. This drift is run for the purpose of prospecting a deposit of ore cut into northeast of the shaft nine years ago. The water in the Alta shaft is stationary at a point a short distance below the floor of the station on the 1200 level. The bottom of the shaft is down 2200 feet below the surface, which corresponds with the 2800 level in the Chollar.

BEST & BELCHER.—A fine belt of mineralized quartz was passed through in advancing west crosscut No. 1 on the 600 level.

CONSOLIDATED CALIFORNIA & VIRGINIA.—During

the week ended the 4th inst., 1060 tons of ore were shipped to the Morgan mill. The average value of the ore milled during this period, according to assays from battery samples, was $23.96.

CROWN POINT.—Arrangements are making preparatory to starting up again with a full force.

GOULD & CURRY.—A marked improvement is noted in the formation above the 450 level, the roof of the uprise showing ore.

SAVAGE.—A shipment of 125 tons of ore from the 600 level was made on the 2d inst.

YELLOW JACKET.—Ore-shipments for the week ended the 4th inst. foot up 800 tons. The management authorizes the statement that a large force of miners will be put on as soon as they can find facilities for crushing the ore extracted.

NEW MEXICO.

GRANT COUNTY.

COMSTOCK.—The shipments of ore from this mine at Kingston, which has become famous through rich strikes, have amounted to about 1275 tons, the average value being about $200 a ton. A little more than half the ore was shipped to the Denver market, the remainder having been sold and treated at Socorro. The richest car-load lot averaged a little over $900 a ton, and the poorest a little less than $100 a ton. There was only one car-load of the latter. In addition to the ore shipped, there are now about 500 tons of ore on the dump, which is treated in a lixiviation mill at Kingston, and which averages $65 a ton. The total value of the ore is thus $255,000 for smelting ore and $32,500 for milling ore, or a total of $287,500. This amount was taken out in three months and ten days. The Comstock is described as a typical vein of the camp. It is a fissure in lime, and a cross-cut has been run fifty-two feet from the foot-wall without finding the other wall. The veins are described as irregular in width, sometimes opening out to a hundred feet and again the walls close together in a seam. The ore occurs in bunches, and little seams or stringers of ore lead from one bunch to another.

SOCORRO COUNTY.

IRON, GOLD, AND SILVER COMPANY.—This property at Cooney is opening up, and will ship as soon as arrangements are perfected.

LACLEDE.—The first-class ore is shipped to St. Louis for treatment. The property shows favorable prospects.

PEACOCK.—This property, which is operated actively, is the life of the Cooney camp. The company has a finely appointed concentrating mill—capacity sixty tons daily—and is steadily sending to market ore in the form of high-grade concentrates. The portion of the Peacock's upper workings from which ore in the past has been taken is hardly noticeable. New strikes in the lower workings of the mine add to its value. During the first half of 1886, the mine yielded about $80,000.

SHERIDAN.—The fifteen-stamp amalgamating mill for the treatment of its ore is about completed.

NORTH CAROLINA.

GRANVILLE COUNTY.

STANDARD GOLD MINING COMPANY.—This company has been organized with a capital stock of $100,000, at Oxford, by Edward Baum, W. A. Hoops, and William A. Middleton. The principal office is to be at Harrisburg, Va.

MECKLENBURG COUNTY.

ST. CATHARINE GOLD MINING COMPANY.—A company has been organized at Charlotte, with a capital of $500,000, by the parties that recently purchased the St. Catharine gold mine at a foreclosure mortgage sale for $150,000. We referred to the work done at this mine in our issue of August 7th.

ROWAN COUNTY.

Mr. J. J. Newman, of Salisbury, is canvassing for an ore-supply for the English company headed by Dr. S. H. Emmens, of the firm of Bryne & Co., No. 12 Buckingham street, Strand, London, who propose to build smelting-works at Salisbury, or on the property of the Union Mining Company, at Gold Hill, fourteen miles southeast of Salisbury. They want the assurance of from 50 to 100 tons of ore a day before beginning the work. The charges for smelting will be $20 a ton. They will buy ore for cash at the following prices: $20 an ounce for gold; 90 cents an ounce for silver; $1 a unit for copper; and 35 cents a unit for lead. The ore to be sampled, and value of each metal determined by fine assay. They propose also to build a large concentrating plant in connection with the smelting-works.

SOUTHERN BELLE.—Operations have been suspended for some time, but arrangements are making for the resumption of work. The ore produced is an arsenical sulphide which is of fairly good grade, and could be made profitable by concentrating and chlorinating.

SWAIN COUNTY.

NORTH CAROLINA TALC AND MARBLE COMPANY.—The quarries of this company are situated directly on the line of the Murphy division of the Western North Carolina Railroad, and 98 miles from Asheville, where the two branches of the Western North Carolina Railroad have their junction. The Nautahala River runs through the property. The company is a private corporation, comprising but three owners. It owns 175 acres, which is cut in two by the railroad. Three immense beds of talc have been opened, but only one of these has been quarried to any extent. The material is the finest in the country, pure white, and absolutely free from all impurities. It has a variety of uses, and is used in rolling-mills for making iron and by the natives as a lubricant. Shipments of the talc are made to various parts of the country. The company has also marble in great abundance. Blocks can be got out fifty feet in length. There is a cliff of solid marble on the property thirty feet high. This marble is susceptible of high polish, and is very beautiful for ornamental purposes. From an adjoining quarry, marble was taken out last month for use in the new governor's mansion, now in course of construction in Raleigh, N. C.

UNION COUNTY.

ALTAN.—The experimental work done on this property some time ago having proved entirely satisfactory, a Griffin mill and Crow concentrators (dry process) have been ordered and will soon be in place on the property.

BREWER.—This mine, it is said, is now under offer to California capitalists. It is considered a fine mine, and when carefully worked, must return handsome profits.

HOWIE.—Boston people have taken charge of this mine on a lease with privilege to purchase. Machinery is going up.

WAKE COUNTY.

NORTH CAROLINA PHOSPHATE COMPANY.—The company is adding a new wing to the buildings at Raleigh, in which will be erected a new 75-ton crusher.

OREGON.

BAKER COUNTY.

BONANZA.—A ten-stamp quartz mill is to be erected at this mine, which is located in the Parker Mining District, six miles from Parker station. Prof. J. E. Clayton drew up the plans and specifications for the mill, which will be complete in all its appointments. The contract for the machinery was awarded to the Willamette Iron-Works Company, Portland.

PENNSYLVANIA.

PHILADELPHIA & CONSHOHOCKEN STONE QUARRY COMPANY.—A charter has been granted to this company, capital $100,000.

PITTSBURG & KANAWHA LUMBER COMPANY.—This company has been organized, with a capital of $18,000, to manufacture and deal in lumber and to mine iron, coal, oil, and other minerals.

SOUTH AMERICA.

CHILI.

The deposits of manganese ore in Chili may be said, practically speaking, to be unexplored; nevertheless, enough is known from the investigations of several eminent geologists to leave no room to doubt that the mineral in question exists in immense quantities in the republic and more especially in the northern provinces. The first attempt to utilize the ore was made about three years ago, when a bed, situated at some distance to the south of Santiago, the capital of the republic, was opened; but the cost of conveying the ore to Valparaiso for shipment proved an insuperable obstacle to the success of the undertaking, and it was abandoned. After the abandonment of the undertaking, operations were begun on a deposit of manganese in the province of Coquimbo, and in 1885, 4,118,015 kilogs. of the ore were exported to England. The beds of manganese in the province of Coquimbo are surface deposits, and the cost of taking out the ore is trifling, but the great difficulty is the expense of transportation to the coast. The bed that is worked in the province of Coquimbo is situated in close proximity to a railroad, and the ore is conveyed to the port of shipment (Coquimbo) on very liberal terms; nevertheless, the cost of the ore by the time it is placed alongside a vessel in Coquimbo harbor ranges per ton from $10 to $12, Chilian currency.

SWAN'S CHILIAN MANGANESE COMPANY.—This company, which has been organized in England with a capital of £150,000, shares £1 each, proposes to purchase from W. C. Tripler, New York, and J. C. Swan, Newcastle-on-Tyne, certain manganese mines and other property in the republic of Chili.

VENEZUELA.

EL CALLAO.—The production during August amounted to from 18,500 to 19,000 ounces gold. A dividend for August has been declared of 40 francs a share, 25 per cent above the highest dividend ever before paid by the company

SOUTH CAROLINA.

The following are the shipments and consumption of phosphate rock from and at Charleston and Beaufort from September 1st, 1882, to August 31st, 1886, as furnished by Mr. P. C. Trenholm of Charleston:

	1883–84.		1884–85.	
	Crude.	Ground.	Crude.	Ground.
From Charleston coastwise	148,422	22,708	120,330	21,592
From Charleston by rail	13,712	2,733	18,323	48
From Charleston foreign	15,675	.....	16,169	.....
Consumed at Charleston	53,638	.....	65,752	.....
From Beaufort coastwise	28,744	.....	31,700	.....
From Beaufort foreign	127,510	.....	136,180	.....
Consumed at Beaufort	3,000	.....	11,500	.....
	390,288	25,441	398,952	21,640

	1885–86.	
	Crude.	Ground.
From Charleston coastwise	160,600	15,511
" " by rail	25,485	.....
" " foreign	9,962	.....
Consumed at Charleston	69,000	.....
From Beaufort coastwise	27,288	.....
" foreign	151,244	.....
Consumed at Beaufort	9,000	.....
	443,479	15,511

TENNESSEE.

KNOX COUNTY.

EAST TENNESSEE VALLEY ZINC COMPANY.—The company's works at Knoxville are said to be completed.

UTAH.

JUAB COUNTY.

BULLION-BECK & CHAMPION MINING COMPANY.—This company on the 9th inst. completed arrangements for executing the $150,000 bond required by the court to stop the Eureka Company from working in the disputed ground pending the appeal to the Supreme Court of the United States.

EMMA.—This mine, at Tintic, was bonded some time ago to John Beck for $15,000, and he has now purchased it. It adjoins the Bullion-Beck group.

MAMMOTH.—Mr Reese has made a failure of his calcining operations for this mine. The Mammoth ships ore to the Argo smelters, Colorado.

SUMMIT COUNTY.

It is well known that the arrangements of the Ontario and Daly machine, carpenter, and blacksmith-shops and the main lumber-yard and saw-mill have not been convenient or satisfactory to the companies. Hence it is that a first-class building, about 100 by 200 feet, has been determined on. In the building, which is to be just south and immediately adjacent to the Marsac mill, will be located the main carpenter, machine, and blacksmith shops of the Ontario and Daly companies. The electric light plant will also be in the new building, and the ground is to be made large enough for the principal saw-mill and lumber-yard. The best machinery, where needed, will be procured, and the fine water-power is to be utilized where practicable. The cost of these improvements will be several thousand dollars. Located centrally and consolidated as the shops will be, a saving in expenses will be realized, with greater convenience to all concerned.

TOOELE COUNTY.

SILVER KING.—A cave in occurred at this mine at Stockton, on the 9th inst. The mine has a large amount of old workings, where it was stoped out eight or ten years ago. The cave is in those workings, and covers a space sixty feet long and fifty feet deep. Ten men were imprisoned, but, owing to the great efforts made, were rescued unhurt. The company is sinking a new shaft from the 100-foot level, having been using the old shaft and a cross-cut to furnish air, and also as an exit for the waste. This new shaft is made in solid ground, because the old one has long been considered unsafe. In about six weeks, they will connect by

cross-cut with the Connor King, and thus secure good air for the new workings.

VIRGINIA.

ROCKBRIDGE COUNTY.

CASH.—Major Willis, of South Carolina, and Mr. Sandford, of New Jersey, it is reported, will put up an experimental furnace at this tin mine to test the ores.

WISCONSIN.

GRANT COUNTY.

The sale of a number of tons of sulphur pyrites for shipment to Georgia, where it is to be used in the manufacture of a fertilizer, has furnished a new feature in mining in the Southern Wisconsin lead regions, and it is more than likely that a market has been found for the vast quantities of this sulphur ore, found principally in this county, which has heretofore been regarded as worthless.

WYOMING.

CARBON COUNTY.

RAWLINS DIMENSION SANDSTONE COMPANY.—This company owns extensive quarries two miles south of Rawlins, and it is proposed to run a railroad spur to it. The saw-mill is at Rawlins. The stone is similar to the Berea, Ohio, stone, and there is a large demand for it. The company has just refused an order for ten car-loads at Atchison, Kansas, because it could not saw it in time. In August, it sent 1100 cubic feet to Nebraska.

CROOK COUNTY.

IRON MOUNTAIN.—This company has been organized with a capital stock of $1,250,000, with Sundance as the place of business.

MARKETS.

NEW YORK, Friday Evening, Sept. 17.

Silver.

DATE.	London. Pence.	N. Y. Cents.	DATE.	London. Pence.	N. Y. Cents.
Sept. 11.	43½	94⅛	Sept 15	44	94¾@95⅝
13.	43½	94⅛	16	43⅞	95¼
14.	43 11-16	94⅜	17	43 13-16	95

The market has been a fluctuating one for the past seven days, and closes rather weak.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 3½ per cent. During the week, the bank gained £168,000 bullion; and the proportion of its reserve to its liabilities was raised from 46⅛ to 48½ per cent, against 42½ per cent at the same date last year.

Copper.—As predicted in our last issue, Lake copper has advanced, and is strong at 10·85c.; below 11c. nothing of any amount can be got. For futures, we quote: October, 10·85c.; November, 10·85c.; December, 10·85c. bid, 11c. asked. During the week, about 600,000 pounds were sold, spot and futures, at the following prices: Spot, 10·65@10·85c.; October, 10·75@10·85c.; November, 10 85c. Orford has ruled at 10@10·25c., and we doubt whether Anchor, Orford, or Parrot could be bought at less than 10·50c. for future delivery. There is a decidedly firmer feeling, and it is created not by speculative manipulations, but by the circumstances of the market. The demand is brisk beyond any precedent, and the curtailment of production is not likely to be momentary. The mines that have shut down are all in strong hands, and they are closed not because running at a loss, but because their owners considered it good business policy to reserve their ore until better prices prevail, which consummation they evidently believed they could assist in bringing about by the action they themselves took. The price on the other side has rallied. The Chili shipments continue to be large, but we know the Chili production does not keep pace with the shipments. A representative of one of the strongest Chili copper concerns was in this country some months ago. He saw our headlong methods of productions, and heard our yard-long stories of new mines, and left for home convinced the worst had not been reached. Unless he corrected his opinions, what reserve he could control would find its way rapidly into the market. The apparent increase of stock in England may be due, and probably is in a great measure, to the small stocks carried by the smelters. Less and less copper reaches the other side in a non-metallic state, and therefore the enormous quantities that must been have carried in course of manufacture by the smelters, and was counted as delivered, now appear as in stock. In many ways, the copper trade of the world is passing through a revolution; the result inevitably is disturbance of price. The London market also shows an advance, and to-day Chili Bars sold at £40 10s. Best Selected at £43.

Tin.—The improvement in this metal has continued, and during the week it has been strong and active, and there appears to be a probability of still higher prices. It has ruled at 22·15c. October and November; cash, 22·15c. asked, 22·10c. bid. The London market continues to show an upward movement, and to-day's quotations show £100 10s. for spot, and £101 5s. for futures. Tin Plates at Liverpool are quoted 12s. 9d.

The shipments to this country during August from the Straits have amounted to 775 tons; from Australia, to 100 tons; for the twelve months ended August 31st, there were shipped from the Straits 5351 tons, and from Australia 1075 tons, making a total of 6426 tons. To London, there were shipped during the same period 18,911 tons, a grand total of 25,337 tons.

Lead.—Dullness continues to be the feature of the market. Sellers have made a further concession of 5c. per 100 pounds in the hope of tempting purchasers, but this has not led to a single transaction, buyers looking for still lower prices. Common lead is freely offered at 4·65c., Refined at 4·75c.; demand, none. Foreign offered on the spot at 4·75c., for shipment at 4·80c. The foreign market to-day shows £12 17s. 6d. for Soft Spanish and £13 5s. for English Lead.

Messrs. Everett & Post, of Chicago, telegraph as follows to-day:

Our market has declined slowly since our last report. It is very dull, and no buyers in the market. Buyers, expecting a decline, are holding off, and buy only for immediate want. Prices nominally 4·50c. Rumored sales, 200 tons October.

Spelter.—There has been no change; 4·37½@4·50c. is offered, according to brand. The demand is light; 6@6¼c. for New Jersey, and 8@8¼c. for Bergenport Lehigh. Foreign Spelter at from 4·70@4·80c. Foreign quotations have been lower at £13 12s. 6d.

Sheet-Zinc.—Nothing has been doing. We continue to quote Domestic at 5½@5·85c.

New Jersey Zinc Oxide is quoted 3¾@4¼c.

Antimony.—A little has been doing in Cookson's at from 9@9¼c. Hallett's has remained at from 7·90@8c. It continues to be quoted in London at £30.

Nickel.—We quote 60@70c. nominal.

Bismuth—Is quoted at $2@$2.25 a pound.

Aluminium—Is quoted at $1 an ounce.

Quicksilver—May be quoted at 51@54c.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Sept. 17.

Iron Ore.—The following are standard prices of Lake ores at Cleveland, but we understand they are shaded:

No. 1 Specular and Magnetic Bessemer ores, per ton	$6.00@6.25
No. 1 Specular (non-Bessemer) ores, per ton	5.00@5.50
Bessemer Hematites	5.00@5.50
Non-Bessemer Hematites	4.00@4.50
Gogebic Range ores	4.75@5.25

Freights from Escanaba, $1.60 a ton. Marquette, $2; and Ashland, it is said that from $2 to $2.35 is paid.

New York prices for foreign ores are from 8@9 cents a unit.

American Pig.—This market is showing brighter prospects, and, considering the improvement in business and the demand that will be made from various quarters, points to an increased consumption.

Some large sales were made during the week. We continue to quote for standard Lehigh brands, tide-water delivery: No. 1 X, Foundry, $18@$18.50; No. 2 X, Foundry, $17@$17.50; Gray Forge, $16@$16.50; while less popular brands sell 50c. or $1 below these figures, and fancy brands go as much above them.

Scotch Pig.—The market is firm and prices remain unchanged. We quote Coltness, $20; Gartsherrie, $19.50; Summerlee, $19.75; Dalmellington, $19; Langloan, $19.50. Cables to the Metal Exchange to-day quote: Coltness, 47s.; Summerlee, 45s.; Langloan, 43s. 3d.; Gartsherrie, 43s. 19d.; Glengarnock, 42s. 3d.; Dalmellington, 40s. 9d.; Eglinton, 39s. 9d.; Warrants, 39s. 10d.; Middlesboro', No. 3, 30s. Freights are 5s. nominally.

Bessemer Pig.—Nothing of importance has been going on in this market. Domestic Pig continues to be quoted at $17.75@$18.25 at the furnace, and Foreign, ex ship, $18.75@$19.

Spiegeleisen.—The market is dull. We quote English, $25@$25.25, and German, $25 for 20 per cent. Eighty per cent ferro-manganese is quoted at $62@$65.

Structural Iron and Steel.—Prices show no change. We continue to quote: Angles, 2@2·10c. delivered; Tees, 2·30@2·45c.; Iron Beams and Channels, 3c. base, for American; Steel Angles, 2·30@2·45c.

Steel Rails.—We hear of but small sales; but the prospects of this market are good, and many heavy orders may be looked for in the near future. Prices remain at from $34@$35 at Eastern mills. Some business has been done in Foreign Rails.

Steel Plates.—We quote 2·10@2·25c. for Tank; 3@3¼c. for Boiler and Ship Plates; 3½c. for Flanges; 4@4½c. for Extra Flange and Fire-Box Plate.

Merchant Steel.—Our quotations remain as follows: American Tool Steel, 7½@10c.; special qualities, 11@20c.; Crucible Machinery, 4@5c.; Bessemer and Open-Hearth Machinery, 2¼@2½c.

Plate Iron.—Common Tank, 2@2¼c.; Refined, 2¼@2⅝c.; Flange Iron, 3¼@3½c.; Extra Flange, 4@4·25c.

Bar Iron.—The market is firm and business better. We quote: Refined at 1·70@1·90c.; Common, 1·60@1·70c. Store prices are ·10@·20c. higher.

Steel Rail Blooms.—Some sales have been made. We quote from $26@$27.

Old Rails.—Holders have been firm in their demand, and prices have advanced. $22.50 now being offered for Double-Heads. American Tees $21@$21.50.

Cast-Iron Pipe.—We continue to quote $32.50 per ton for 4-inch pipe; $31.50 for 6-inch; and $28.50 for 48-inch, at the foundry, as about the bottom.

Scrap.—The market is quiet, with small sales. We quote $18@$19 for Wrought, and $13@$14 for Cast.

Rail Fastenings.—We quote Spikes, 2·35@2·45c. a pound delivered, and 1¾@2c. for Angle Fish-Bars.

Philadelphia. Sept. 16.

[From our Special Correspondent.]

The receipts of iron ore from Cuba and from Spain have been exceptionally large, and it is the intention of the two steel rail companies doing the importing to continue their heavy shipments from Cuba up to the close of the season.

Pig-Iron.—The demand for both foundry and forge iron is moderate, and confined largely to special and standard brands, in both kinds. Ordinary irons incline to drag. Brokers expect to work off the lower grade at their asking prices, and will probably succeed in doing so, as the consumption is very heavy. The heavy buying has not yet set in. The output is so large that consumers feel no apprehension. Between 200 and 300 tons of special brands brought $19.25. About as much more, in small lots, sold at $18.25@$18.50. The founders are not expecting any decline, but will not place large orders against the possibility of an advance, as they think that is out of the question. Forge iron may sell a little more readily if the advance that seems probable takes place. A great deal of old iron is used in mills. For Forge iron, quotations run from $15.50@$16.25. Two or three agents are in negotiations to-day for what may turn out to be the biggest transactions of the month.

Muck-Bars.—There has been a good deal of business this week at from $29@$30.

Blooms.—The demand for anthracite blooms has picked up.

Merchant Iron.—Merchant iron has been nominally advanced to 2c. by store-keepers, and mills are selling at 1·75@1·90c. for Refined; Medium, 1·60@1·70; and Common is not much if any thing less. There is a better demand for merchant bar. Card rates have been advanced nominally one tenth.

Nails.—Nails are in moderate demand, and quotations are $2.10.

Skelp Iron.—Skelp is quoted at 1·85@1·95c., and capacity is all sold up.

Wrought-Iron Pipes.—The mills are busy; discounts firm, and business crowding in.

Sheet-Iron.—Demand for all kinds of sheet-iron is fair, at card rates.

Plate and Tank Iron.—Some business has been done

in Plate Iron to-day at 2·15c., and Tank at 2·10c., but buyers of large lots can be accommodated at a little less.

Structural Iron.—Angles are quoted at 1·90@ 2·05c.; Beams and Channels, at 3c. All mills are busy and manufacturers are looking with a great deal of confidence to an increase in business.

Steel Rails.—Bottom quotations for steel rails are $34 for convenient deliveries in the winter, and from $34.50@$35.50 for smaller lots. There is a great deal of scattering inquiry.

Old Rails.—Old rail quotations range from $21@ $22, with business at $21@$21.50. Large buyers have made arrangements for foreign shipments, and the strain on the market seems to be about over.

Scrap-Iron.—All kinds of scrap are in good demand, and yards are bare of selected and No. 1, and agents are scouring the market for fresh supplies.

Pittsburg. Sept. 16.

[From our Special Correspondent]

The tone of the market is decidedly firmer, with a larger inquiry, particularly for city made iron and favorite brands. We believe the market is fully 25 cents a ton better than last week. We reported a sale on Saturday of 4000 tons Bessemer for $17.75 cash, being 25 cents advance on the previous 2000 tons sold. Bessemer is held firmly at $18 cash, $18.50 4 months. Gray Forge, both Lake and Native ore, is tending upward. Late last week, sales of 3000 tons Gray Forge, deliverable before January 1st, $15.75 four months. The same could not be duplicated under $16. Several furnaces are holding for an advance, and seem disposed to wait until metal reaches their figures. One thing is very evident—only the very large production of iron prevents prices from showing a material advance. Southern pig-iron seems to attract scarcely any attention. So far as our city furnaces are concerned, prices are stubbornly firm, notwithstanding the large output. Sellers of these descriptions have held their own all the way through, and will be pretty certain to continue to do so. A noticeable feature for some days past is the comparative absence of outside lots, which a short time since crowded this market. The natural result will be to throw the demand on our own makes.

Muck-bar is firm, but not quotably higher. The tendency is certainly that way. Scrap-iron, all descriptions, is firm, and finds ready purchasers at outside figures. Old iron rails are firm. Last sale reported, $23 cash; now held $23.50@$24 cash.

Pig-Iron.—Following are the current rates:

Coke or bituminous:	$	$
Foundry No. 1	17 25@17.75	
Foundry No. 2	16.25@16 75	
Gray F., No. 3	15.00@15.50	
" " No. 4	14.50@14.75	
White	14.50@15.00	
Mottled	15.00@15.50	
Silvery	15.50@18.50	
Bessemer	@18.00	
Charcoal:		
Foundry No. 1	21.50@22.00	
Foundry No. 2	20.00@20.50	
Cold-Blast	23.00@25.00	
Warm-Blast	19.00@23.00	
20 p. c. Spiegel	26.00@27.00	
Muck-Bar	27.00@27.35	
Steel Blooms	30.00@36.00	
Steel Slabs	29.00@33.00	
Steel Crop Ends	22.00@	
St'l Bl'm Ends	21.00@	
Old Iron Rails	23.00@23.50	
Old Steel Rails	23 00@23.50	
No. 1 W. Scrap	17.50@18.00	
No. 2 W. Scrap	15 00@16.50	
Steel Rails	36.00@36.50	
" light sect's	37.00@40.00	
Bar Iron	1.70@ 1.75	
Iron Nails	2.00@ 2.05	
Steel Nails	2.05@ 2.10	

The advance of one tenth on bar iron in Philadelphia produced no change here.

RAW IRON TRANSACTIONS.

Coke and Coal Smelted Lake Ore.

500 tons Gray Forge	$15.75	4 mos.
500 " Gray Forge, extra	16 00	cash.
100 " Gray Forge, extra	16.00	cash.

Coke, Native Ore.

200 tons Gray Forge	$15.50	cash.
300 " Gray Forge, at furnace	15.50	cash.
200 " No. 1 Foundry, all ore, at furnace	17.50	cash.

Old Iron Rails.

500 tons old iron rails	$23.00	cash.

The same offer was refused for 4000 tons.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Sept. 17.

Statistics.

Production of Coke on line of Pennsylvania RR. for week ended September 11th, and year from January 1st:

Tons of 2000 pounds.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Allegheny Region.	3,492	127,065	3 851	133,489
West Penn. RR.	1.657	73,359	2,050	36,409
Southwest Penn. RR	56,801	1,803,474	45,311	1,356,222
Penn. & W. Region	7,865	224 907	3,651	169,287
Monongahela	7,896	96,683	1,799	68,969
Pittsburg Region				
Snow-Shoe	869	17,914	700	12,720
Total	78,580	2,343,402	57,367	1,777,114

The report of the total output of coal from the mines on the line of the Chesapeake & Ohio Railroad for the week ended August 31st, 1886, and year from January 1st, is as follows: 1886, week, 39,512 tons: year, 791,268 tons; 1885, week, 30,987 tons; year, 725,125 tons. Increase, 1886, week, 8525; year, 66,143 tons.

The Norfolk & Western Railroad Company reports shipments of Pocahontas Flat-Top coal for the week ended September 11th, 1886, and year from January 1st, as follows, tons of 2000 pounds: 1886, week, 19,816; year, 582,203; 1885, week, 8,601; year, 390,599. Increase, 1886, week, 11,215; increase, year 191,604.

Production Anthracite Coal for week ended September 11th, and year from January 1st:

Tons of 2240 lbs.	1886. Week.	1886. Year.	1885. Week.	1885. Year.
P. & Read. RR. Co.	276,642	7,572,910	274,508	7,398,665
L. V. RR. Co.	141,650	4,062.944	159,038	3,792,944
D. L. & W. RR. Co.	111.496	3,291.901	127,189	3,103 905
D., & H. Canal Co.	86,884	2,406,030	97,189	2,069,668
Penna. RR.	49,336	2,160.192	70,103	2,205,206
Penna. Coal Co	38,213	897,606	29,967	875,002
Penna. Canal Co.	15,655	297,271	15,678	261,211
Total	719,876	20,688,854	773,672	19,706,601
Increase		982,253		
Decrease	53,796			

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Production for corresponding period:

1881	19,289,700	1883	21,818,510
1882	19,592,849	1884	20,600,853

Production Bituminous Coal for week ended September 11th and year from January 1st:

Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Phila. & Erie RR		7.840	78	21,111
**Cumberland, Md.*	71,901	1,541,335	65.018	1,898,587
Barclay, Pa.	3,170	133,059	5,410	165,594
**Broad Top, Pa.*				
H. & Broad Top RR.	†	256,455	2,654	106,635
East Broad Top				
Clearfield Region, Pa.				
Snow Shoe	2,372	71.429	2,043	99,472
Karthaus (Keating)	4,382	90,801	1.165	85,339
Tyrone & Clearfield	48,505	1,431,291	46,555	2,019,691
Alleghany Region, Pa.				
Gallitzin & Mountain	9,554	466,461	10.802	360,307
Total	139,884	3,998,671	133,725	4,756,736

* Tons of 2240 lbs.

WESTERN SHIPMENTS.

Pittsburg Region, Pa.				
West Penn RR	4,041	232.096	2,388	157,618
SouthwestPenn.RR.	2.275	122 989	2.205	69,601
Pennsylvania RR	7.560	186,409	2,960	145,100
Westmoreland Region, Pa.				
Pennsylvania RR	32.390	791,969	27,840	818,434
Monongahela Region, Pa.				
Pennsylvania RR	4,081	267,424	6,573	188,635
Total	50,347	1,600,887	41.966	1,379,388
Grand total	190,231	5,599,558	175,691	6,136,124

† Report not received.

Anthracite.

Our advice is, to buy coal. It is evidently going higher.

On Tuesday, the sales agents met in this city and in a thoroughly business-like manner agreed upon an advance of 10 cents a ton on broken, stove, and chestnut sizes, and 15 cents on egg, making the quotations f.o.b. at shipping ports as follows:

Broken	$3.50
Egg	3.70
Stove	4.00
Chestnut	3.55

A meeting will be held on the 30th inst., when it is expected that stove coal will be advanced 25 cents a ton and other sizes from 10 to 15 cents.

It is not expected that the allotment for October will be less than 3,250,000 tons, or more than 3,500,000 tons.

There is a moderate business for coal at the new prices, while the movement of all sizes, excepting stove, on old orders, is highly satisfactory. The public has been very much behind this year in ordering coal for cellars. It is stated, however, that this business has picked up very much during the past week, and it is thought that there will be an active demand for domestic sizes soon.

There are some good outside coals always obtainable at concessions; but the great bulk of the coal coming to market is held as firmly as can be at full circular prices.

The coal trade has been managed for some months past by the sales-agents, who know what the market requires in the way of quantity, and what can be obtained from buyers. They have made a greater success in the management of the trade than we expected. In fact, we have never seen the trade under better control than it is now, and it affords us great pleasure in congratulating the gentlemen to whom this is due.

The coal-carrying roads are doing so large a general business that there are grave fears that there will not be nearly enough equipment to continue this business, and meet the demands of the coal market during the next two months. This scarcity of cars and locomotives is not confined to the Reading, as many suppose, but is felt by nearly, if not all, of the other roads.

There are evidences that the Reading Railroad will be reorganized on some basis in harmony with the Pennsylvania Railroad. If so, this will settle the question of tolls to Philadelphia, and will probably make it a much easier matter to arrange a satisfactory plan for the future management of the coal trade. Under this arrangement, the Pennsylvania may somewhat increase its coal business, and will then be more willing to make as much money as possible out of it. It is folly for the management to assert that it will not go into an arrangement to divide the anthracite coal trade, when it enters a bituminous coal pool and a trunk line pool that have practically the same objects.

We quote ordinary free burning coal, net, per ton, free on board vessels as follows:

Lump	$3.35	Chestnut	$3.35@$3.40
Steamboat	3.35	Pea	2.00@ 2.10
Broken	3.35	Buckwheat	1.60
Egg	3.55	Dust	1.35
Stove	3.85		

The Philadelphia & Reading Coal and Iron Company issued the following general price-circular September 14th:

On and after this date, and until further notice, the following will be the prices for this company's coal, delivered on board vessels at Port Richmond, Philadelphia, Pa. (for shipment beyond the Capes of the Delaware), and Elizabethport, N. J., subject to our printed conditions of sale:

Kinds of Coal.	Port Richmond. Egg.	Port Richmond. Stove.	Port Richmond. Chestnut.	Elizabethport, N. J. Egg.	Elizabethport, N. J. Stove.	Elizabethport, N. J. Chestnut.
	$	$	$	$	$	$
Hard white-ash	3.70	3.80	3.35	3.90	4.00	3.55
Free-burning white-ash	3.50	3.80	3.35	3.70	4.00	3.55
North Franklin white-ash	3.80	3 80	3.35	4.00	4.00	3.55
Schuylkill red-ash	3.80	4.20	3 50	4.00	4.55	3.70
Shamokin white-ash	3.80	4.20	3.35	4.00	4.55	3.55
Shamokin red-ash	3.90	4.45	3.50	4.10	4.80	3.70
Lorberry	4.05	4.45	3.60	4.25	4.80	3.80
Lykens Valley	4.65	4.85	4.00	5.00	5.20	4.35

Port Richmond: Hard White-Ash, Lump, $4; Steamboat, $4; Broken, $3.50; Pea, $2. Free-burning White-Ash, Broken, $3 30; Pea, $2. Lykens Valley, Broken, $4. Elizabethport: Hard White-Ash, Lump, $4.25; Steamboat, $4.25; Broken, $3.70; Pea, $2 20. Free-burning White-Ash, Broken, $3.50; Pea, $2.20. Lykens Valley, Broken, $4.35.

Bituminous.

There appears to be a fair demand for coal in some quarters, while the shipments on contracts are quite large. Cars are generally very scarce, and coal in short supply. Still there are no indications that prices are likely to improve. A more demoralized set of men than the managers of the bituminous companies can hardly exist. The mines were closed by a strike for many weeks, and there was a grand opportunity to recoup some of the losses due to the strike by taking advantage of the necessities of buyers; but instead, prices were permitted to go all to pieces before one tenth of the requirements of the market were supplied.

It has always been asserted by the sellers of bituminous coal that that fuel is worth from 15 to 25 per cent more than anthracite. Ordinary anthracite broken and egg coal will average now $3.70 a ton alongside in this city, while bituminous coal will not average above $3.

Such a condition of affairs naturally suggests that in the past there has been some gross misrepresentation as to the merits of bituminous coal, or that the trade's managers are a very foolish set of men. However, it is very evident that it is only a matter of a comparatively short time when the incompetency of the present managers will force a concentration of interests and demonstrate the truth of the survival of the fittest.

Buffalo. Sept. 16.

[From our Special Correspondent].

Returning from a three days' outing to take up my pencil for my usual letter, your correspondent finds that he might as well have extended his short vacation; for the devil a bit of news is there to report.

Prices are unchanged; demand and supply as by my last letter.

Lake freights on coal are very firm. Many vessels have left light in preference to taking 75c. to Chicago and Milwaukee. The strong rates at all ports on the lakes keep every body in a pleasant frame of mind.

If a fleet of vessels should arrive, then a decline on present rates might be the result; but from the feeling prevailing among owners, an advance is more likely to occur before the end of the week.

The coal shipments by lake Westward from September 9th to 15th, both days inclusive, were: 22,690 to Chicago, 11,230 to Milwaukee, 4750 to Duluth, 2000 to Racine, 1130 to Superior City, 2400 to Detroit, 1180 to Kenosha, 1630 to Port Arthur, 100 to Port Burwell, 480 to St. Joseph's, 350 to Port Huron, 700 to Houghton; making a total for the season (including vessels cleared from Tonawanda, destination not stated) of 988,505 net tons. The engagements and rates reported were as follows: 75c. to Chicago and Milwaukee; 60c. to Duluth and Superior City; 80c. to Portage; 85c. to Kenosha; $1 to Port Arthur (special conditions); 20c. to Toledo and Detroit; 85c. to Racine; and 30c. to Port Burwell; closing strong.

The coal charters reported during the past week were as follows: 1 load to New York, $2 per net ton, free in and out; and 2 loads to Syracuse, 80c. gross, free in and out. The nominal rate to Albany and West Troy, $1.50 per net ton, free in and out.

The receipts of coal by canal at this port for the second week in September were 4180 net tons. The shipments for the same period, 828 net tons.

So little has been said about the coal trade of Duluth this season by the newspapers published there, that an item like the following is replete with interest, and therefore your correspondent gives it in full without apology. It is from the Lake Superior *News* of the 4th of September: "Early in the season, it was expected here, and by the coal companies, that coal receipts at Duluth and Conner's Point for the present season would exceed those of last year by fully 200,000 tons, or would be about 800,000 tons. The receipts, however, have been greatly overestimated, and the head of the lake will probably not get more than 600,000 or 650,000 tons. Among the reasons for this are the low freight rates on coal to Duluth, against rather high rates to Chicago; the delay in completing the new coal-docks; and the trouble with the new Lehigh Company's coal-dock at West Superior. Not so much coal has been unloaded here to date this season as a year ago. About 350,000 tons have been the receipts, distributed as follows: Northwestern Fuel Company, 136,000 tons; Ohio Coal Company, 100,000 tons; St. Paul & Pacific Coal Company, 60,000 tons; Pioneer Fuel Company, 15,000 tons; Lehigh Coal Company, about 40,000 tons. The Northwestern Fuel Company will double its receipts before the close of the season, making 270,000 tons. The Ohio Company has but half of its coal, and will end the season with 200,000. The St. Paul & Pacific expects 125,000 tons in all. The Pioneer Fuel Company 25,000 tons, and the Lehigh Coal Company all it can land on the dock. It now utilizes probably 30,000 tons more than it has already. In addition to this, retail coal firms will get from 5000 to 8000 tons, making total receipts for the season 700,000 tons. It is quite probable that the figure of total receipts made up at the close of the season will fall 50,000 tons short of the above amount. Between 90,000 and 100,000 tons were on the city docks at the beginning of the season. At present, there is a very considerable amount of coal coming in, receipts for the last two days being 16,000 tons on ten vessels."

A new coal and ore dock is constructing at Ashland, Wis, on Lake Superior, for the Milwaukee, Lake Shore & Western Railroad. It will be the largest in the world. The Wisconsin Central Company will also construct one at the same place. The Lehigh Valley Company is building a new dock at Duluth, of large size.

Boston. Sept. 15.

[From our Special Correspondent.]

It is a little difficult for our local buyers to take stock in the recent advance and in the boom in the coal trade, because they are not contributing to it. Boston has no part in the advance, and will furnish no aid or comfort to it for the present. The wharves here are too well stocked. Retail trade is draggy, and must be livened up once or twice by Old Jack Frost. Other sections of this great country must hold up prices, if they are to be maintained. Agents here are more bullish in their talk than ever, and inform the Boston buyer that New Yorkers and Philadelphians are relieving the market of a great deal of coal just now, and that the Western movement is very good. Practically, nothing has been done at this port on recent advance prices. The last week to ten days has been exceedingly dull here, as all parties admit. There has been an abundance of coal afloat to clear up orders at old prices.

It is claimed that prices for Stove will be put up to $4 and $4.15 possibly, if the strength of the market will allow it; and if not, those prices will nominally be made, so that there may be some margin for reduction at the opening of next season. We quote f.o.b. prices at New York, nominally $3.90 for Stove, $3.40 for Broken, and $3.55 for Egg.

The dealers operating coal pockets in this market have issued a new circular, the first since May, making the following prices:

White Ash Broken, $4.75; Egg, $4.90; Stove, $5.15; Nut, $4.25; Pea, $3.25. Free-Burning Broken, $4.60; Egg, $4.75; Stove, $5.15; Nut and Pea same as hard white ash. No change in Lykens Valley, Broken and Nut remaining at $5.50, Egg at $6.25, and Stove $6.50.

The amount of bituminous coal business is scarcely visible to the naked eye. We quote $2.10@$2.15 f.o.b. Provincial coal is offering at $2.30 delivered, but there is room for very little of it, even at this greatly reduced price.

Freight rates remain at a minimum.

We quote rates exclusive of discharging:

New York, 80@90c.; Philadelphia, $1@$1.05; Baltimore, $1.10@$1.15; Newport News and Norfolk, $1.05@$1.10; Richmond, $1.10@$1.15; Cape Breton, $1.85@$2; Bay of Fundy, $1.60.

Retail trade is still lifeless, and figures are nominally unchanged at the advance last noted. We quote delivered prices:

White ash, furnace and egg	$4.50@$4.75
" stove and nut	5.00@ 5.25
Lehigh furnace, egg and stove	5 25@ 5.75
" nut	5.50@ 5.75
Shamokin egg	5.50@ 6.00
" stove	5.75@ 6.00
Lorberry egg and stove	@ 6.50
Franklin egg and stove	@ 7 00

There is but little business.

Pittsburg. Sept. 16.

[From our Special Correspondent.]

We have nothing new to report. Until we have a rise in the Ohio, coal news will be scarce. At Cincinnati, there is room for improvement. The amount of coal loaded ready for shipment exceeds five million bushels. The wickets being up at Davis Island Dam makes a six-foot stage in the harbor, sufficient for all ordinary purposes. Below the dam, only one foot nine inches is reported.

River wholesale prices, f.o.b., 3¾@4¾c. a bushel; Railroad, 4¼@4¾c.

Connellsville coke continues in a tolerably healthy condition. Sales show a slight falling off. Prices are maintained. The general impression is, that there are too many new ovens erecting for the good of the trade. Blast-Furnace, $1.50 f.o.b. cars at ovens; Foundry, $1.75; Crushed, $2.50.

FINANCIAL.

Mining Stocks.

NEW YORK, Friday Evening, Sept. 17.

The mining market has continued active, and much interest has been shown in many of the stocks. Prices show little variation. The total transactions were 53,815 shares, showing an increase of 2591 shares, as compared with the preceding week.

The largest business is recorded in Nevada stocks, and the most prominent were North Belle Isle, which last week sold as high as $2, and this week has ruled at from $2.05@$2.45. Navajo also shows an advance at from 90c.@$1. Belle Isle, at from 42@55c. Eureka has been firm, at $3.50@$3.75. Consolidated California & Virginia still receives the most attention among the Comstock shares; it opened at $2.85, declined to $2.55 on Wednesday, but advanced again to $2.70. Hale & Norcross, from $1.25@$1.10. Sierra Nevada, on which an assessment of 25 cents has been levied, was only dealt in on the 11th inst., and the price then ruled at 55c. Savage was firm at from $2.30@$2.25. Ophir, $1.40. Sutro Tunnel, was stationary at 7@8c.

Colorado stocks were quite active. Little Pittsburg declined from 40@32c. Little Chief ruled at from 22@24c. Robinson Consolidated, at from 50@56c. Chrysolite, at 53@56c. Iron Silver, in which no transactions have been made for many weeks, had a sale of 100 shares at $2. Amie is still on the market, and is selling at 2c.

Much interest continues to be shown in Bulwer and Bodie; the former ruling at from $1.65@$1.75, and the latter, from $2.45@$2.35, Standard was quiet at 79@80c. Mono, at $2.60@$2.65. Considerable business has been done in Quicksilver Preferred and Common, both of which have shown declining prices; they have sold respectively at from $24@$23 and from $7@$6.25. Plymouth Consolidated has also revived; it opened at $16.50, reached $16.63, and closed at $16.25. Taylor-Plumas shows a sale at 8c.

The usual monthly dividend of $50,000 has again been declared by Homestake, the price of which now stands at from $19@$18.12½. Deadwood-Terra, from which excellent reports are received, and for which dividends are in store, sold at from $2.55@$2.75. Father de Smet stands at $1.

Horn-Silver was firm at from $1.90@$1.75. Ontario showed a sale of 100 shares at $25.

Silver King has been lower, declining from $4.90 to $4. Moulton ruled at $1.50.

Coal Stocks.

The week under review has had something of a boom in it. The feeling is still very bullish, the belief prevailing that if Reading is reorganized it will be the basis for another deal similar to the West Shore deal of last year. It is expected that this will be of great benefit to the coal stocks.

The dealings in Lackawanna aggregate 140,638 shares at $130⅞@$133½, closing at $132⅞. Reading ranged between $26 and $33½, with sales of 222,787 shares, closing at $33⅜. Delaware & Hudson was dealt in to the extent of 17,567 shares at $100¼@$102⅛, closing at $101½. Jersey Central ranged between $55½ and $57¾, and closed at $57, with sales of 55,066 shares.

It is stated positively that an agreement between Mr. Gowen and the Morgan-Welsh syndicate was signed this afternoon.

Meetings.

The annual and special meetings of the following companies will be held at the times mentioned:

Candela Mining and Smelting Company, No. 400 Chestnut street, Room 28, Philadelphia, Pa., October 1st, at twelve o'clock M.

Dividends.

Big Bend Hydraulic Mining Company, of Dakota, has declared dividend No. 32, of three cents a share, or $6000, payable on the 20th inst.

Homestake Mining Company, of Dakota, has declared dividend No. 98, of forty cents a share, or $50,000, payable on the 25th inst., at Messrs. Lounsbery & Co.'s, 15 Broad street, New York.

ASSESSMENTS.

COMPANY.	No.	When levied.	Delinquent in office.	Day of sale.	Amount.
Andes, Nev	....	Sept.16	.....	.....	.25
Bannock, Idaho	2	Aug. 19	Sept.20	Oct. 5	.25
Bullion, Nev	31	Aug. 31	Oct. 5	Oct. 26	.30
Chollar, Nev	21	Aug. 24	Sept.29	Oct. 20	.30
Cons. Imperial, Nev.	23	Aug. 5	Sept. 8	Sept.28	.10
Courier, Idaho	....	Aug. 11	Sept. 16	Oct. 5	.12½
Enterprise, Dak	12	July 20	*Sep.15	*Oct. 4	.01
Eureka Cons., Nev	10	July 28	Sept. 6	Sept.27	1.00
Far West, Dak	10	Aug. 13	Sept.17	Oct. 6	.02
Golden Jacket, Nev	2	Sept. 1	Oct. 14	Nov. 4	.10
Gold Point Con., Cal.	11	Aug. 3	Oct. 2	Oct. 23	.01
Hailey Hill, Utah	....	Aug. 2	Sept. 9	Sept.25	.01
Harmony, Dak	1	Aug. 11	Sept.15	Oct. 1	¼
Homeward Bo'd, Dak	2	Aug. 6	Oct. 4	Oct. 25	⅛
Indian Spring, Cal	6	July 26	Aug. 30	Sept.30	.03
Iron Mountain, Dak	1	May 31	*Sep.30	Oct. 18	¼
Keokuk, Dak	2	Aug. 12	Sept.15	Oct. 15	¼
Loreto, Mex	9	Aug. 5	Sept. 8	Sept.29	.40
Lucky S., Cal	....	Aug. 7	Sept. 4	Oct. 2	.14
Mayflower Gravel, Cal	32	Sept. 6	Oct. 15	Nov. 12	.25
Minna, Dak	2	Sept. 7	Oct. 8	Oct. 25	¼
Mount Corey, Nev	1	Aug. 25	Oct. 2	Oct. 23	1.00
New Basil Cons., Cal.	10	Aug. 18	Sept.20	Oct. 18	.05
Nevada, Nev	1	Aug. 25	Oct. 2	Oct. 23	1.00
No. Banner Con., Cal	14	Aug. 7	Sept. 9	Sept.27	½
Occidental, Nev	7	Aug. 9	Sept.13	Oct. 4	.30
Overman, Nev	....	July 9	.....	.....	.15
Potosi, Nev	25	Aug. 31	Oct. 5	Oct. 26	.30
Ross-Hannibal, Dak.	1	Sept. 4	Oct. 9	Oct. 26	.01
Ruby, Dak	1	Aug. 10	Sept.15	Oct. 15	.01
Seabury-Calkins, Dak	4	Sept. 7	Oct. 12	Oct. 30	.02
Sierra Nevada, Nev	....	Sept.13	.....	.....	.25
Silver Reef, Dak	1	Aug. 23	Sept.23	Oct. 9	½
Silver Star, Dak	1	July 8	*Oct.11	*Oct.27	¼
Union, Utah	....	Aug 28	Oct. 25	Nov. 11	½
Utah, Nev	53	Aug. 24	Sept.28	Oct. 18	.50

* The delinquent day and the day of sale were postponed to dates given above.

St. Louis Mining Stocks. Sept. 15.

[From our Special Correspondent.]

The market has been featureless this week, with the exception of another upward spurt in Sheridan, which was bid up on the call to $4.15, with several hundred shares sold at that figure. Yavapai has also been

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par value	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			Dividends. Total paid to date.	Dividends. Date and amount per share of last.		
1	Adams, s. L	Colo.	$1,500,000	150,000	$10	*	.. ..	....	.....	$472,500	Sept	1886	15
2	Alice, s. C	Mont	10,000,000	400,000	25	*	.....	.....	.....	750,000	Sept	1886	.06¼
3	Amie Con., s. L	Colo.	5,000,000	500,000	10	*	.....	.. ..	.....	330,000	Oct.	1883	.05
4	Amy & Silversmith, s.	Mon.	.....	341,419	....	.....	.....	.....	.....	63,281	Aug	1886	.10
5	Atlantic, C	Mich	1,000,000	40,000	25	$240,000	Apl.	1875	$1.00	320,000	Jan.	1886	$1.00
6	Argenta, s	Nev..	10,000,000	100,000	100	295,000	July	1885	.10	40,000	Feb.	1880	.20
7	Barbee & Walker, s.	Utah	1,000,000	100,000	10	*	.....	.....	.....	60,000	No	1880	10
8	Bassick, G. s	Colo.	10,000,000	100,000	100	*	.....	.....	.....	400,000	Mar.	1884	1.00
9	Belle Isle, s	Nev..	10,000,000	100,000	100	140,000	May	1886	.10	300,000	Dec.	1879	.25
10	Belcher, G. s	Nev..	10,430,000	104,300	100	2,217,335	ec.	1845	30	15,337,000	Apl.	1876	1.00
11	Bellevue Idaho, s. L	Idah.	1,250,000	12,500	10	20,250	Dec.	1884	10	125,000	Aug	1886	.10
12	Big B'nd Hydraulic, G	Dak..	1,000,000	200,000	5	*	.....	.....	.....	192,000	Sept	1886	.03
13	Black Bear, G	Cal..	3,000,000	3,000	100	22,500	Dec.	1884	2	895,000	May	1883	.20
14	Bodie Con., G. s	Cal..	10,000,000	100,000	100	324,990	Jun.	1886	.50	1,602,572	Apl.	1885	.50
15	Bonanza Developm't	C&M	3,000,000	300,000	10	.....	.....	.....	.....	135,000	Oct.	1882	.15
16	Bonanza K'g, Cons. s.	Cal..	1,000,000	100,000	10	*	.. ..	.....	.....	185,000	Feb.	1880	.10
17	Boston & Mont, G	Mont	2,000,000	200,000	10	*	.....	.....	.....	520,000	Jun	1886	.15
18	Breece, s	Colo.	5,000,000	200,000	25	*	.....	.. ..	.....	2,000	Feo.	1880	.01
19	Brooklyn Lead, L. s	Utah	500,000	50,000	10	.....	.....	.....	.....	102,000	Sept	1886	.05
20	Bulw r, G	Cal	1,000,000	100,000	100	40,000	Oct.	1885	20	175,000	Jan.	1884	.10
21	Caledonia, G	Colo.	1,000,000	100,000	100	505,000	May	1885	.15	40,000	Feb.	1886	.10
22	Calumet & Hecla, C	Mich	2,500,000	100,00	25	1,200,000	..	....	.....	27,850,000	Jun.	1886	5.00
23	Carbonate Hill, s. L	Colo	2,000,000	200,00	10	*	.....	.....	.....	80,000	Apl.	1884	.05
24	Caribou Con., s	Colo.	1,500,000	150,000	10	*	.....	.....	.....	50,000	Mch	1880	.10
25	Castle Creek, G	Utah	100,000	100,000	1	.....	.....	.....	.....	51,000	Oct.	1883	.03
26	Catalpa, s L	Colo.	3,000,000	300,000	10	*	.....	.....	.....	270,000	May.	1884	.10
27	Central, C	Mich	500,000	20,000	25	100,000	Sept	1861	.06	1,780,000	Jan.	1886	2.00
28	Christy, s	Utah	10,000,000	100,000	100	.....	.....	.....	.....	10,000	Jun.	1880	.10
29	Chrysolite, s. L	Colo.	1,000,000	200,000	50	*	.....	.....	.....	1,650,000	Dec.	1884	.25
30	Colorado Central, s. L	Colo.	2,750,000	275,000	10	*	.....	.....	.....	143,75	Oct.	1886	.05
31	Cons Cal. & Va., G. s.	Nev..	21,600,000	216,000	100	198,000	Jan.	1885	2	64,800	Feo.	1886	.3
32	Con. Gold Mining, G	Ga..	500,000	100,000	5	*	.....	.....	.....	108,000	Nov.	1883	02
33	Contention, s	Ariz.	12,500,000	250,000	50	.....	.....	.....	.....	2,587,500	Dec.	1884	.25
34	Crescent, s. L. G	Nev..	15,000,000	300,000	25	*	.....	.....	.....	210,000	Aug.	1886	.05
35	Crown Point, G. s	Nev.	40,000,000	400,000	100	2,975,000	Feb.	1882	.25	11,588,000	Jan.	1875	2.00
36	Deadwood-Terra, G	Dak..	5,000,000	200,000	25	*	.....	.....	.....	1,000,000	Jan.	1883	.10
37	Derbec B. Grav., G. s.	Cal..	10,000,000	10,000	100	90,000	Dec.	1881	.10	140,000	Jun.	1886	.10
38	Dunkin, s. L	Colo.	5,000,000	200,000	25	*	.....	.....	.....	220,000	Sept	1884	05
39	Elknorn, G. s	Mont	1,500,000	100,000	10	50,000	July	1883	.50	140,000	Sept	1886	.50
40	Eureka Con., G. s. L	Nev..	5,000,000	50,000	100	50,000	July	1888	1.00	4,817,500	July	1842	.25
41	Evening Star, s. L	Colo.	50,000	50,000	10	*	.....	.....	.....	1,400,000	Nov	1883	.50
42	Excelsior, G	Cal..	10,000,000	100,000	100	563,000	Sept	1885	1.00	875,000	Oct.	1880	.25
43	Father de Smet, G	Dak.	10,000,000	100,000	100	2,000,000	Nov	1878	1.00	1,125,000	Dec.	1885	.20
44	Franklin, C	Mich	1,000,000	40,000	25	220,000	Jun	1871	....	52,000	Jun.	1886	1.00
45	Freeland, S. C	Colo	5,000,000	200,000	25	*	.....	.....	.....	100,000	July	1880	.10
46	Fresno Enterprise, G	Cal..	5,000,000	100,000	50	.....	.....	Mch	1884	110,000	Jul	1882	.10
47	Gould & Curry, G. s.	Nev.	10,800,000	108,000	100	4,001,000	Jun	1886	.50	3,825,000	Oct.	1879	10.00
48	Grand Central, s	Ariz.	1,000,000	100,000	10	.....	.....	.....	.....	625,000	Dec.	1882	.25
49	Grand Prize, s	Nev..	10,000,000	100,000	100	570, 0	Apl.	1886	.50	495,000	Mar.	1884	.25
50	Granite, s	Colo.	125,000	25,000	1	.....	.....	.....	.....	6,250	May	1883	.01
51	Granite Mountain, s.	Mont	10,000,000	400,000	25	.....	.....	.....	.....	1,400,000	Sep.	1886	.25
52	Green Mountain, G	Cal..	1,250,000	125,000	10	*	.....	.....	.....	212,000	Nov.	1881	.07½
53	Hale & Norcross, G. s	Nev..	11,200,000	112,000	100	4,930,000	July	1886	.50	1,598,000	Apl.	1871	5.00
54	Hall-Anderson, G	N. S..	150,000	150,000	1	.....	.....	.....	.....	7,000	Jan.	1882	05
55	Hecla Con., s. G. L. C.	Mont	1,500,000	30,000	50	.. ..	.....	.....	.....	1,032,000	July	1886	.50
56	Hel'a M g & Red, G. s. L	Mont	3,315,000	663,000	5	*	.....	.....	.....	197,97	July	1886	.05
57	Holmes, s	Nev..	10,000,000	100,000	100	300,000	Sept	1885	10	75,000	Apl.	1886	.25
58	Holyoke, G	Idah.	200,000	200,000	1	.....	.....	.....	.....	27,000	Feo.	1883	.10
59	Homestake, G	Dak.	12,500,000	125,000	100	200,000	July	1878	1.00	3,568,750	Sept	1886	.40
60	Honorine, s. L	Utah	500,000	250,000	2	25,000	Jun	1883	....	62,500	Nov.	1885	.05
61	Hope, s	Mont	400,000	8,000	50	*	.....	.....	.....	158,252	Oct.	1884	1.50
62	Horn-Silver, s. L	Utah	10,000,000	400,000	25	*	.....	.....	.....	4,000,000	Nov.	1884	.50
63	Idaho, G	Cal.	310,000	3,100	100	.....	.....	.....	.....	3,750,000	Jun.	1886	7.50
64	Ideal, s L	Colo.	1,500,000	150,000	10	.....	.....	.....	.....	7,500	July	1886	.05
65	Independence, s	Nev..	1,000,000	100,000	100	320,000	Aug.	1885	.20	225,000	Sept	1879	.25
66	Indian Queen, s	Nev..	250,000	125,000	2	.....	.....	.....	.....	368,750	July	1883	03
67	Invo, G	Cal..	500,000	100,000	5	*	.....	.....	.....	45,000	Apl.	1882	.05
68	Iron Hill, s	Dak.	2,500,000	25,000	50	82,500	Oct.	1885	....	100,000	Sept	1886	.05
69	Iron-Silver, s. L	Colo	10,000,000	500,000	50	*	.....	.....	.....	1,700,000	July	1886	20
70	Jackson, G. s	Nev.	5,000,000	50,000	100	10,000	Nov.	1880	.20	4,000	Jun.	1885	.10
71	Jocuistitla, s	Mex.	2,500,000	250,000	10	.....	.....	.....	.....	1,20 ,000	Feo.	1885	50
72	Kentuck	Nev..	3,000,000	30,000	100	342,000	Nov	1881	.30	1,350,000	July	1884	.10
73	La Plata, s. L	Colo.	2,000,000	200,000	10	*	.. ..	.....	.....	610,000	Sept	1882	.30
74	Leadville Cons., s. L	Colo	4,000,000	400,000	10	*	.....	.....	.....	390,000	May.	1886	.05
75	Lexington, G. s	Mont	4,000,000	40,000	100	*	.....	.....	.....	565,000	Jan.	1885	2.00
76	Little Chief, s. L	Colo	1,000,000	200,000	50	*	.....	.....	.....	780,000	Mch	1885	.10
77	Little Pittsburg, s. L	Colo.	20,000,000	200,000	100	*	.....	.....	.....	1,050, 00	Mch.	1881	.50
78	Manhattan, s	Nev.	5,000,000	50,000	100	150,000	July	1872	1.00	437,500	Feb	1886	.25
79	Marguerite, G	Cal	500,000	25,000	20	.....	.....	.....	.....	18 750	Oct.	1882	.25
80	Marion Bullion, G	N.C	500,000	.....	....	.....	.....	.....	.....	15,000	Jan.	1886	.....
81	Marion White, s	Nev.	10,000,000	100,000	100	1,15 ,000	Mar.	1881	.25	90,000	July	1879	.30
82	Minnesota, C	Mich	1,000,000	40,000	25	420,000	Apl.	1885	1 00	1,820,000	Mar.	1876	.....
83	Mono, G	Colo.	5,000,000	5,000	10	50,000	Jua.	1885	.50	12,500	Mar.	1886	.25
84	Montana, Lt., G. s.	Mont	3,300,000	33,000	10	*	.....	.....	.....	660,300	July	1886	.02
85	Morning Star, s. L	Colo.	1,000,000	100,000	10	.....	.....	.....	.....	600,000	Aug.	1886	.25
86	Mutton, s. G	Mont	2,000,000	400,000	5	*	.....	.....	.....	250,000	Aug	1886	.07½
87	Mount Pleasant, G	Cal.	150,000	150,000	1	*	.....	.....	.....	105,000	Mar.	1884	.10
88	Mt. Diablo, s	Nev	5,000,000	50,000	100	137,500	Jun.	1880	2.00	80,000	July	1885	.20
89	Napa, Q	Cal..	700,000	100,000	7	.....	.....	.....	.....	200,000	Jan.	1883	.10
90	Navajo, G. s	Nev..	10,000,000	100,000	100	395,000	Mar.	1886	25	325,000	Feb.	1885	.25
91	N. Hoover Hill, G. s.	N. C	300,000	120,000	2½	*	.....	.....	.....	30,000	Dec.	1885	.06¼
92	New York Hill, G	Cal..	5,000,000	50,000	100	62,500	Oct	1885	.15	215,000	Aug.	1882	.10
93	Northern Belle, s	Nev..	5,000,000	50,000	100	425,000	Jan.	1884	8.30	2,400,000	Apl.	1883	50
94	North Bells Isle, s.	Nev..	10,000,000	100,000	100	150,000	Mar	1886	.20	31,000	Aug.	1881	.15
95	Ontario, s. L	Utah	15,000,000	150,000	100	.....	.....	.....	.....	7,625,000	Aug	1886	.50
96	Ophir, G. s	Nev..	10,000,000	100,000	100	3,957,800	Jun.	1886	.25	1,595,000	July	1882	1.00
97	Original, s. C	Mont	1,500,000	60,000	25	*	.....	.....	.....	114,000	Oct.	1884	.05
98	Osceola, C	Mich	1,250,000	50,000	25	480,000	Apl.	1876	1.60	972,500	Sept	1884	25
99	Oxford, G	N. S.	125,000	125,000	1	*	.....	.....	.....	345,00	Oct.	1885	.02
100	Paradise Valley, G. s	Nev.	10,000,000	100,000	100	47,000	Mar.	1882	.15	110,000	Aug.	1886	.25
101	Pleasant Valley, G. s.	Cal..	10,000,000	100,000	100	40,000	Mar.	1884	.10	30,000	Dec.	1882	.03
102	Plutus, G. s C. L	Colo.	2,000,000	200,000	10	*	.....	.....	.....	210,00	Feb.	1886	.10
103	Plymouth Con, G	Cal..	5,000,000	100,000	50	*	.....	.....	.....	1,750,000	Sept.	1886	.25
104	Prussian, s. L	Colo	1,500,000	150,000	10	.....	.....	.....	.....	132,000	Jan	1883	.10
105	Quicksilver, pref., Q	Cal..	4,300,000	43,000	100	.....	.....	.....	.....	785,150	Aug.	1886	1.25
106	" com., Q	Cal	5,700,000	57,000	100	.....	.....	.....	.....	151,000	July	1882	.40
107	Quincy, C	Mich	4,000,000	40,000	25	200,000	Dec.	1862	....	4,410,000	July	1883	2.00
108	Richmond, s. L	Nev..	1,350,000	54,000	25	*	.....	.....	.....	4,177,587	May	1886	1.25
109	Ridge, C	Mich.	500,000	20,000	25	220,000	Mar	1886	.50	10 ,000	Feb.	1880	.50
110	Rising Sun, s	Dak..	750,000	150,000	5	*	.....	.....	.....	52,000	May	1881	.07½
111	Robinson Con, s. L	Colo.	10,000,000	200,000	50	*	.....	.....	.....	535,000	Mar.	1886	.05
112	Robert E. Lee, s. L	Colo.	10,000,000	500,000	20	.....	.....	.....	.....	100,000	Dec.	1882	.10
113	Rooks, G	Va..	500,000	50,000	10	*	.....	.....	.....	61,000	Apr	1885	.30
114	San Francisco, C	Cal..	5,000,000	50,000	100	45,000	Sept	1880	.50	20,000	Feb.	1881	.05
115	Savage, s	Nev.	14,000,000	112,000	100	6,156,000	Jun.	1886	.50	4,400,000	Apl.	1879	3.00
116	Security L Mg, Mfg	Colo.	1,000,000	100,000	10	*	.....	.....	.....	5,000	July	1884	.....
117	Snoshone, G	Idan.	15,000,000	150,000	1	.....	.....	.....	.....	7,500	Apl.	1883	.01
118	Sierra Buttes, G	Cal..	225,000	22,500	10	.....	.....	.....	.....	1,430,639	Apl.	1886	.25
119	Sierra Grand, s	N. M.	2,500,000	500,000	5	.....	.....	.....	.....	860,000	Sept	1884	.25
120	Sierra Nevada, G. s.	Nev..	10,000,000	100,000	100	5,972,693	Sept	1886	.25	104,000	Jan.	1871	1.00
121	Silver Cord, G. s. L	Colo.	5,000,000	500,000	10	.....	.....	.....	.....	225,000	Nov.	1883	.25
122	Silver King, s	Ariz.	10,000,000	100,000	100	.....	.....	.....	.....	1,750,000	Aug	1885	.25
123	Silverton, G. s. L	Colo.	2,000,000	200,000	10	*	.....	.....	.....	64,000	Aug	1886	.02
124	Small Hopes Cons., s.	Colo.	5,000,000	250,000	20	*	.....	.....	.....	2,275,000	Aug	1885	.50
125	Smuggler, s. L	Colo.	667,000	66,700	10	.....	.....	.....	.....	66,700	Aug.	1885	.25
126	Socorro, C	N. M.	250,000	4,000	100	.....	.....	.....	.....	4,000	Mch	1882	.00¾
127	South Yuba, G	Cal..	2,000,000	40,000	50	*	.....	.....	.....	150,000	Oct.	1881	.75
128	Spring Valley, G	Cal..	2,000,000	2,000	1	*	.....	.....	.....	50,000	Jan.	1881	.25
129	Standard, G. s	Cal..	10,000,000	100,000	100	25,000	Oct.	1884	.25	4,425,000	Mar.	1884	.25
130	Stormont, s	Utah	500,000	500,000	1	*	.....	.....	.....	155,000	Nov.	1881	.05
131	St. Joseph, L	Mo..	1,100,000	110,000	10	*	.....	.....	.....	502,000	July	1886	.60
132	Syndicate, G	Cal..	10,000,000	130,000	100	34,729	July	1885	.15	48,3 8	Sept	1885	.10
133	Tip Top, s	Ariz	10,000,000	100,000	100	253,000	Sept	1883	.25	100,000	Nov.	1881	.20
134	Tombstone, G. s. L	Ariz	12,500,000	50,000	25	*	.....	.....	.....	1,250,000	Apl.	1882	.10
135	True Fissure, G. s. L	Utah	1,000,000	150,000	10	*	.....	.....	.....	75,000	Jun.	1883	.15
136	United Verde, C	Ariz.	3,000,000	300,000	10	*	.....	.....	.....	97,500	Feb.	1884	.20
137	Valencia, M	N. M.	150,000	1,500	100	*	.....	.....	.....	41,25	Apl	1886	2.50
138	Vizina, s	Ariz.	5,000,000	200,000	25	*	.....	.....	.....	140,000	Apl.	1882	.10
139	Yankee Girl	Colo.	2,500,000	250,000	10	.....	.....	.....	.....	1,012,500	Aug.	1885	10
140	Yellow Jacket, G. s.	Nev.	12,000,000	120,000	100	5,414, 00	Dec.	1885	.75	2,184,000	Aug.	1871	1 50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			
1	Agassiz Cons., s. L	Colo.	$2,500,000	50,000	$50	*	.....	.....	.....	
2	Albion, s. L	Nev..	15,000,000	150,000	100	$577,000	July	1883	.50	
3	Allouez, C	Mich	2,000,000	80,000	25	240,000	Feb.	1884	.50	
4	Alpha Con., G. s.	Nev..	3,000,000	30,000	100	430,000	Mar	1886	.50	
5	Alta, s	Nev..	10,080,000	100,800	100	1,951,400	Feb.	1886	25	
6	American Flag, s	Colo	1,250,000	125,000	10	300,000	Jun.	1877	.25	
7	Anglo-Montana, Lt.	Mon.	600,000	120,000	5	.....	.....	.....	.....	
8	Appalachian, Lt., G	N. C.	1,500,000	300,000	5	.....	.....	.....	.....	
9	Aspen Mg. & S, s. L	Colo.	2,000,000	200,000	10	.....	.....	.....	.....	
10	Barcelona, G	Nev..	5,000,000	200,000	25	*	.....	.....	.....	
11	Battle Creek, G	Dak.	5,000,000	20,000	25	.....	.....	.....	.....	
12	Bear Creek	Cal..	300,000	300,000	1	.....	.....	.....	.....	
13	Bechtel Con., G	Cal..	10,000,000	100,000	100	173,500	a.	1883	.10	
14	Belvidere	Cal..	.....	60,000	.....	92,000	b.	1882	.15	
15	Belmont, s	Nev..	5,000,000	50,000	100	735,000	Apl.	1886	.10	
16	Best & Belcher, G. s.	Nev.	10,080,000	100,800	100	1,698,190	Jun.	1886	.50	
17	Big Pittsburg, s. L	Colo.	20,000,000	200,000	100	*	.....	.....	.....	
18	Black Jack, G	Cal..	250,000	100,000	2½	.....	.....	.....	.....	
19	Bonanza Chief	Mon	1,000,000	1,000,000	1	*	.....	.....	.....	
20	Bondholder	Colo	500,000	200,000	2½	.....	.....	.....	.....	
21	Boston Con., G	Cal..	10,000,000	100,000	100	170,000	Nov	1885	.25	
22	Bradshaw, s	Ariz.	2,250,000	225,000	10	.....	.....	.....	.....	
23	Buckeye Common	Colo.	2,000,000	400,000	5	*	.....	.....	.....	
24	Bull Domingo, s. L	Colo.	10,000,000	200,000	50	*	.....	.....	.....	
25	Bullion, G. s	Nev.	10,000,000	100,000	100	4,600,000	Aug.	1885	.30	
26	Bye and Bye	Ariz.	1,000,000	100,000	10	*	.....	.....	.....	
27	Calaveras, G	Cal..	500,000	500,000	1	*	.....	.....	.....	
28	Catskill, s	Nev.	1,500,000	300,000	5	.....	.....	.....	.....	
29	Central Arizona, s	Ariz	10,000,000	100,000	100	.....	.....	.....	.....	
30	Con Contin'l, G. s. L	C &A	2,000,000	200,000	10	*	.....	.....	.....	
31	Charles Dickens	Idan	1,250,000	250,000	5	.....	.....	.....	.....	
32	Cherokee, G	Cal..	1,500,000	150,000	10	.....	.....	.....	.....	
33	Chollar, s	Nev..	11,200,000	112,000	100	1,040,000	Aug.	1886	.50	
34	Cinnamon Mt., G. s.	Colo.	750,000	150,000	5	.....	.....	.....	.....	
35	Climax, s. L	Colo.	2,000,000	200,000	10	*	.....	.....	.....	
36	Colorado No. 2, s. L	Colo.	100,000	10,000	10	.....	.....	.....	.....	
37	Con. Imperial, G. s.	Nev..	50,000,000	500,000	100	1,100,000	Aug.	1886	10	
38	Con. Pacific, G	Cal..	6,000,000	60,000	100	174,000	Feb.	1886	.15	
39	Cons Silver, s	Mo..	2,500,000	250,000	10	.....	.....	.....	.....	
40	*Cop. Queen Cons, C.	Ariz	1,400,000	140,000	10	.....	.....	.....	.....	
41	Courtlandt	Colo	500,000	50,000	10	.....	.....	.....	.....	
42	Crescent, s. L	Colo.	3,000,000	300,000	10	*	.....	.....	.....	
43	Crocker, s	Ariz.	10,000,000	100,000	100	65,000	May	1886	.20	
44	Crowell, G	N. C	500,000	50,000	1	*	.....	.....	.....	
45	Dahlonega, G	Ga..	250,000	250,000	1	*	.....	.....	.....	
46	Dandy, s	Colo.	5,000,000	500,000	10	.....	.....	.....	.....	
47	Dardanelles, G	Cal.	1,000,000	100,000	10	*	.....	.....	.....	
48	Decatur, s	Colo.	1,500,000	300,000	5	*	.....	.....	.....	
49	Denver City, s. L	Colo.	5,000,000	500,000	10	*	.....	.....	.....	
50	Denver Gold	Colo	300,000	60,000	5	.....	.....	.....	.....	
51	Deseret, G s	Utah	500,000	50,000	10	*	.....	.....	.....	
52	Dunderberg, s	Colo	1,500,000	150,000	10	*	.....	.....	.....	
53	Durango, G	Colo	500,000	500,000	1	*	.....	.....	.....	
54	Durango T	Mex	120,000	1,200	100	.....	.....	.....	.....	
55	Eastern Dev. Co., Lt	N. S	1,500,000	150,000	10	990,000	Mar.	1886	1.60	
56	Elko Con., s	Nev.	.....	.....	....	.....	Mar	1884	.15	
57	Empire Lt., G	Mon.	5,000,000	1,000,000	5	.....	.....	.....	.....	
58	Empire, s	Utah	10,000,000	100,000	100	*	.....	.....	.....	
59	Enterprise., s. L	Colo.	800,000	80,000	10	*	.....	.....	.....	
60	Eureka Tunnel, s. L	Nev..	10,000,000	100,000	100	.....	.....	.....	.....	
61	Exchequer	Nev.	10,000,000	100,000	100	840,000	Aug	1885	.20	
62	Garfield, Lt., G. s	Nev.	500,000	100,000	5	.....	.....	.....	.....	
63	Gold Placer, G	Colo.	5,000,000	200,000	25	*	.....	.....	.....	
64	Goodshaw, G	Cal..	10,000,000	100,000	100	229,814	Dec.	1885	.25	
65	Grand Belt, C	Fer.	12,000,000	120,000	100	*	.....	.....	.....	
66	Grand Duke	Colo.	800,000	80,000	10	.....	.....	.....	.....	
67	Gregory-Bobtail, G	Colo.	550,000	550,000	1	.....	.....	.....	.....	
68	Gregory Con., G	Mon.	3,000,000	300,000	10	*	.....	.....	.....	
69	Hariem M. & M. Co, G	Cal..	1,000,000	200,000	5	.....	.....	.....	.....	
70	Head Cent. & Tr. s. G	Ariz.	10,000,000	100,000	100	.....	.....	.....	.....	
71	Hidalgo, s	Mex.	200,000	20,000	10	.....	.....	.....	.....	
72	Highland, C	Mich	500,000	25,000	25	.....	.....	.....	.....	
73	Hortense, s	Colo.	2,000,000	200,000	10	.....	.....	.....	.....	
74	Iroquois, C	Mich	1,250,000	50,000	25	*	.....	.....	.....	
75	J. D. Reymert	Ariz	10,000,000	100,000	100	.....	.....	.....	.....	
76	Julia Cons., G. s.	Nev..	11,000,000	110,000	100	1,438,000	Nov	1885	.10	
77	Kearsarge, C	Mich	1,250,000	50,000	25	100,000	Apl.	1886	5.00	
78	Lacrosse, G	Colo.	1,000,000	100,000	10	*	.....	.....	.....	
79	Lee Basin, s. L	Colo.	5,000,000	500,000	10	*	Sept	1882	.25	
80	Leviathan, s	Nev..	10,000,000	100,000	100	380,000	.....	.....	.....	
81	Lucerne, s	Colo.	5,000,000	500,000	10	*	Jan.	1885	.10	
82	Mammoth Bar, G	Cal..	10,000,000	100,000	100	50,000	Dec.	1881	.....	
83	Mariposa prof., G	Cal..	5,000,000	50,000	100	1,687,500	Feb.	1883	.25	
84	" common, G	Cal..	10,000,000	100,000	100	1,975,000	Dec.	1881	.20	
85	May Belle, G	Cal..	10,000,000	100,000	100	84,000	Mar	1884	.15	
86	Mayflower Gravel	Cal..	1,000,000	100,000	100	85,000	Sept	1886	.35	
87	Mexican, G. s	Nev.	10,000,000	100,800	100	2,565,760	Jun.	1886	.25	
88	Mine & Starr, s. L	Colo	1,000,000	200,000	5	*	.....	.....	.....	
89	Miner Boy, G. s. L	Colo.	5,000,000	500,000	10	*	.....	.....	.....	
90	Miller	Nev	5,000,000	200,000	25	.....	.....	.....	.....	
91	Moose Silver, s	Colo.	3,000,000	300,000	10	*	.....	.....	.....	
92	Nachoochee, Lt., G	Ga..	1,000,000	200,000	5	.....	.....	.....	.....	
93	New Pittsburg, s. L	Colo	2,000,000	200,000

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Sept. 11. H.	Sept. 11. L.	Sept. 13. H.	Sept. 13. L.	Sept. 14. H.	Sept. 14. L.	Sept. 15. H.	Sept. 15. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	SALES.
Alice, Mon									.02				6,700
Amie Con., Co	.02												300
Argenta					.20	.15							
Bassick, Co													
Belle Isle, Ne	.42		.50		.55	.53			.50		.50		3,800
Bodie Cons., Ca			2.45				2.40	2.35	2.35		2.35		2,200
Breece													
Bulwer, Ca			1.65		1.70		1.70	1.65	1.65		1.65		3,550
Caledonia											.60		500
Carbonate Hill													
Chrysolite, Co	.55	.53					.56						700
Colorado Central													
Cons. Cal. & Va., Ne	2.85		2.75		2.85		2.55		2.70		2.70		4,300
Crown Point													
Deadwood	2.75	2.55			2.75								390
Eureka Cons., Ne	3.50								3.75				65
Father de Smet, Dk	1.00												100
Freeland													
Gold Stripe, Ca													
Gould & Curry, Ne													
Grand Prize, Ne													
Green Mountain, Ca													
Hale & Norcross, Ne					1.25		1.15		1.19				1,400
Helena													
Homestake, Dk	19.00	18¼											125
Horn-Silver, Ut	1.75				1.70				1.75	1.70			800
Independence, Ne	.30				.40								200
Iron Silver, Co	2 00												100
Leadville C., Co													
Little Chief, Co			.22						.24	.23			1,200
Little Pittsburg, Co			.40		.40	.38			.36		.32		2,000
Martin White, Ne													
Moulton					1.50								100
Navajo, Ne					.90		.94	.93	1.00		1.00		2,800
North Belle Isle, Ne	2 05		2.10		2.10				2.25		2.45	2.30	1,950
Ontario, Ut	25.00												100
Ophir	1.40												300
Osceola													
Plymouth	16.50	16.38	16.50		16 63		16.63				16.38	16.25	100
Quicksilver Pref., Ca	24.00		24.50	24.00	24.00				23.50	23 00			800
" Com., Ca					7.00	6.25	6 50	5.75	6.63	6.50	6.50		1.235
Quincy													
Robinson Cons., Co			.50		.56	.54							1,600
Savage, Ne					2 30				2.25				400
Sierra Nevada, Ne	.55												700
Silver King, Ar			4.75		4.70	4.60					4.90	4.00	600
Spring Valley, Ca													
Standard, Ca	.79				.80		.80						400
Stormont, Ut													
Tip Top, Ar													
Yellow Jacket													

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Sept. 11. H.	Sept. 11. L.	Sept. 13. H.	Sept. 13. L.	Sept. 14. H.	Sept. 14. L.	Sept. 15. H.	Sept. 15. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	SALES.
Albion													
Alta													
American Flag				.08									4,000
Barcelona, G													
Bechtel Con., G													
Belvidere													
Belcher													
Best & B'licher, G. S													
Big Pittsburg, S. L													
Bowman Silver													
Bull-Domingo, S.L													
Castle Creek													
Central Ariz'na, S													
Cons. Imperial													
Con. Pacific													
Cusi													
Decatur													
Durango, G													
Eastern Oregon													
Goodshaw, G													
Harlem M. & M. Co													
Harshaw													
Kossuth													
Lacrosse, G											.08		1,000
Mariposa Pref., G													
" Com., G													
Mexican, G. S											.60		300
Mono			2.60				2.65						500
New Pittsburg													
North Standard, G													
N. Horn-Silv'r, S L													
Pri'nt'l & Miller, S													
Plutus													
Potosi													2,800
Rappahannock, G	.09		.09								.09		5,100
Red Elephant, S													
Ridge													
Silver Cliff, S													
Sonora Con													
South Bodie, G													
South Bulwer, G													
South Hite													
South Pacific													
State Line, 1 & 4, S													
" Nos. 2 & 3, S													
Sutro Tunnel	.07		.07				.08		.08				2,000
Taylor Plumas							.08						300
Tioga													
Unadilla, S													
Union Cons., G. S	.45												500
Utah													

Dividend shares sold, 40,115. Non-dividend shares sold 13,700.

quite active, several thousand shares changing hands at full figures. A telegram was received from the superintendent saying that the mill had started and was working satisfactorily. Adams and Peacock were also quite strong, the former on account of declaration of 10 cents regular and 5 cents extra dividend, and the latter on reported strike of rich ore-bodies.

The latest quotations as by our special advices:

NAME OF COMPANY.	Location.	Bid.	Asked.
Adams, S. L	Colo	$4.50	$4.75
Cen. Continental, G. S	Ark		1.00
Consolidated Silver, S	Mo		1.00
Courtland	Colo		.65
Dandy, S	Colo		1.00
Granite Mountain, S	Mont	36.50	37.50
Hope, S	Mont	40.00	45.00
Ideal, S. L	Colo		1.00
Laclede			1.10
Peacock	N. M	3.75	4.00
Puritan			1.00
Quincy	Colo		.20
St. Louis & Mexico	Mex		
St. Louis & Sonora, G. S.	Mex		.27½
St. Louis & St. Elmo	Colo		1.00
St. Louis & Yavapai	Ariz	1.10	1.15
Sheridan	N. M	4.00	4.25
Small Hopes Cons., S. L	Colo	7.25	8.00

Pipe Line Certificates.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

	Opening.	Highest.	Lowest.	Closing.	Sales.
Sept. 11	62⅜c.	63c.	62⅜c.	62⅝c.	1,620,000
13	62½	62¾	62¼	62⅝	1,547,000
14	62¼	63⅜	62¼	63⅛	2,922,000
15	63¼	64¾	63⅛	64⅛	3,933,000
16	64⅛	66	63⅞	64⅝	8,524,000
17	65	65⅝	64⅞	65½	2,990,000
Total sales					21,536,000

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, Sept. 16.

The market for copper stocks the past week has been one of unwonted activity, and prices throughout the list show a handsome advance over last week. The only exception is Calumet & Hecla, which has ruled steady at about $1 under the previous quotations, with sales at $222½@$221. Quincy advanced readily from $54¼ to $55½, with large sales, and is in good demand at the advanced rates. Franklin has been the most active stock of the list, sales footing up over 6000 shares, opening at $13, and steadily advancing to $13⅞, with a small lot at $14, closing a little lower at $13⅛ to-day. Osceola has also had its boom, and records an advance from $14¾@$16⅛, with a slight reaction to $16, and later sales at $16⅝. Atlantic advanced from $9, last sale (August 10th), to $10¾, and has been unusually active for this stock. Huron advanced from $2@$2⅝, with later sales at $2⅝, which was bid, no stock offering. Allouez touched $3, an advance of $⅝, and none offered better than that price, although a small sale was made at $2¾. Arnold sold at 50c., and was in good demand. At the Mining Exchange, there is a good inquiry, with some sales of the low-priced copper stocks active in years gone by. We note sales of Aztec at 20c.; Humboldt, at 10c.; Star,

BOSTON MINING STOCK QUOTATIONS.

	Sept. 10. H.	Sept. 10. L.	Sept. 11. H.	Sept. 11. L.	Sept 13. H.	Sept 13. L.	Sept. 14. H.	Sept. 14. L.	Sept. 15. H.	Sept. 15. L.	Sept. 16. H.	Sept. 16. L.	SALES.
Amie													
Allouez	2.25		2.37½	2.25	2.75	2.50	3.00	2.75	2.87½	2.75	2.75		2,495
Atlantic					10.25				10.50	10⅝	10.75		700
Arnold					.50		.50		.50				1,900
Aztec			.20		.20		.20		.20		.20		800
Belle Isle													
Blue Ridge													
Bodie													
Bonanza D			.80		.80		.80						400
Boston & Montana			5.										650
Bowman Silver					.10				.10		.10		2,000
Bijou Cons													
Breece	.20						.23				.24		700
Bulwer													
Calumet & Hecla	222½	221½	221.		221.				222½		221.		61
Catalpa													
Cedar Spring													
Central													
Con. Pacific													
Con. Virginia													
Copper Falls													
Crescent	.09								.10		.10		3,000
"Cusi"													
Dunkin													
Empire	.05												500
Eureka													
Franklin	13.25	13.	13⅝	13.25	13.75	13.50	13⅞	13⅝	14	13⅞	13.50		6,133
Freeland													
Grand Prize													
Hanover													
Humboldt	.10				.10		12½		.10		.15		1,000
Huron			2.		2.50	2.12½	2.62½	2.57½	2.62½		2.37½		2,300
Mascot													
Mesnard													
Napa			1.										200
Ontario													
Osceola	15.				16.50	16.	16.25		16⅛	16.	16⅜	16.	1,234
Pewabic													
Quincy	55.	54.50	54⅞	54.50	55.50	55.	55.50				55.		883
Ridge													
Robinson													
Security													
South Side													
Standard													
Star	.15		.15				.10				.20		1,200
Sutro Tunnel	.07				.08		.08		.08		.07		2,600
Stormont	.12		.12		.12½				.12		.12½		1,200
Tamarack													
Winthrop			.05				.08						500

COAL STOCKS.

NAME OF COMPANY.	Par value of shares.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share. Sept. 11. H.	Sept. 11. L.	Sept. 13. H.	Sept. 13. L.	Sept. 14. H.	Sept. 14. L.	Sept. 15. H.	Sept. 15. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	Sales.
Barclay Coal														
Cameron Coal	50	16¼		16⅝				16¾		16¾		17		112
Col., C. & I	10	28¾	28¼	28⅞	28¾	29¼	28½	29¼	28½	29¼	28⅞	29¼	28¾	5,020
Ches. & O. RR	100			8½	8¼	9		8⅞				9		800
Consol. Coal	100													
Cumb. C. & L	100													
Del. & H. C	100	100⅝	100¼	101	100½	101⅜	100¾	101½	100⅝	101¼	100¾	102⅛	101⅛	17,567
D., L. & W. RR	50	131½	130⅞	132¼	131⅝	133	131⅞	132¾	132	133	131⅞	133⅛	132⅝	140,638
Elk Lick Coal Co														
Lehigh C. & N.†	50	51⅝	51¼	51⅝	51½	51⅝	51¼	51⅝	51½	51¾	51⅝			1,761
Lehigh Valley RR.†	50	57¼		57¼		57½	57¼	57¾						596
L. & W. C. & I. Co														
Maryland Coal	100					10								100
Montauk Coal	100													
Morris & Essex	50													
New Central Coal	100									10½				100
N. J. C. RR	100	55⅞	55½	56¼	55½	56⅛	55⅝	56½	55½	57⅝	56⅛	57¾	57	55,066
N. Y. & S. Coal	50													
Penn. Coal	50													
Penn. RR.†	50	57¾	57⅛	58⅛	57¼	58¼	58	58⅛	58	58	57⅞			11,912
Ph. & R. RR.*	50	26¼	26	26⅜	26⅛	26½	26¼	28⅜	26¼	29¾	28⅝	33½	29⅜	258,668
Spring Mountain	50													
Westmoreland Coal†	50													

* Of the sales of this stock, 35,881 were in Philadelphia, and 222,787 in New York.
† The quotations for these stocks are not percentage, but actual price. Total sales, 492,240.

FREIGHTS.

The latest actual charters to September 17th, per ton of 2240 pounds :

To	From Philadelphia	From Baltimore.	From New York shipping ports.
Alexandria	.60		
Annapolis	.65		
Baltimore	.58§		
Bangor	1.05*	1.15	1.10
Bath, Me	1.05*	1.15	.85*
Beverly	1.05*		.85*
Boston, Mass	1.05*	1.15	.85*
Bridgeport, Conn.		1.00	.60
Brooklyn		1.00	.18§
Cambridge, Mass.	1.05*		.85*
Cambridgeport	1.05*		.85*
Charleston, S. C.	.80@.85	.90@1.00	
Charlestown	1.05*		.85*
Chelsea	1.05*		.85*
Com. Pt., Mass.	1.05*		.85*
E. Boston	1.05*		.85*
East Cambridge	1.05*		.85*
E. Gr'nwich, R. I.			.75@.80
Fall River	.90*	1.00	.75
Galveston		3.00@3.25	
Gardner	1.05*¶		
Georgetown, D.C.	.60		
Gloucester	1.05*		
Hoboken	.95		
Jersey City			
Lynn	1.05@1.10*		1.35
Marblehead	1.05*		
Newark		1.15***	
New Bedford	.90*	1.00	.80
New-Berne	.75		
Newburyport	1.20*	1.25	1.00*
New Haven		1.00	.60
New London		1.00	.70
New Orleans	2.00		
New York		1.00	.25§
Newport	.90*		.75@.80
Norfolk, Va	.50@.55*		
Norwich		1.25	.75@.80
Pawtucket			.75@.80
Portland, Me	1.05*	1.15	.85*
Portsmouth, N.H.	1.15*	1.25	.95*
Portsmouth, Va.	.55		
Providence, R. I.	.90*	1.00	.75@.80
Quincyport			1.10
Richmond, Va	.60@.65		
Rockport	1.25*		
Roxbury, Mass.	1.05*		
Saco	1.05*¶		
Salem, Mass.	1.05@1.10*	1.15	.85*
Savannah	.90	1.00@1.05	
Somerset		1.00	.75
Washington	.60@.65		
Williamsb'g, N.Y.		1.00	
Wilmington, Del		1.00	
Wilmington, N.C.	.80	1.00	

* And discharging. † And discharging and towing. 3c. per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. †† Pilotage. ** Below bridge. *** Old B. L.

12½c. ; and others ; which would seem to indicate a belief that an active speculation in this class of mines is anticipated in the near future. The sales for the week comprise 61 shares Calumet & Hecla ; 873 Quincy ; 6033 Franklin ; 1234 Osceola ; 1120 Allouez; 1900 Huron ; 700 Atlantic ; and 500 Arnold ; total, 12,421, against 4262 last week.

In silver stocks, there is but little doing. We note sales of Boston & Montana at $5, a decline of $2 a share from the last sale (September 1st). Catalpa, dull at 21@22c. Crescent, at 9@10c. Dunkin, 27@30c. Bowman, 9@10c. Others not materially changed.

3 P.M.—Closing prices : Allouez, $2⅝ bid, $3 asked. Atlantic, $10½ bid. Boston & Montana, $5 bid, $7 asked. Calumet & Hecla, $221 bid, $225 asked. Franklin, $13½ bid, $13⅞ asked. Huron, $2⅜ bid. Osceola, $16¼ bid, $16½ asked. Quincy, $55 bid, $56 asked.

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

NAME OF COMPANY.	Closing Quotations. Sept. 10.	Sept. 11.	Sept. 13.	Sept. 14.	Sept. 15.	Sept. 16.
Albion						
Alpha						
Alta	.90	.95	1.12½	1.12½	1.25	1.50
Argenta						
Bechtel						
Belcher						
Belle Isle						
Best & Belcher	1.00	1.12½	1.12½	1.12½	1.00	1.00
Bodie	2.37½	2.37½	2.37½			
Bullion						
Bulwer	1.50	1.62½	1.75	1.75	1.62½	1.75
Challar	.60	.60	.60	.60	.50	.50
Con. Pacific						
Con. Cal. & Va.	2.62½	2.75	2.75	2.75	2.75	2.75
Crown Point						
Day						
Elko Cons						
Eureka Cons	3.62½		3 62½			3.50
Exchequer						
Gould & Curry	.70	.65	.65	.65	.66	.65
Grand Prize						
Hale & Norcross	1.25	1.25	1.25	1.25	1.12½	1.12½
Independence						
Martin White						
Mexican	.65	.65	.60		.60	.55
Mono	2.50	2.50	2.50			
Mount Diablo			1.50	1.50	1.50	
Navajo	.70	.80	.95	.95	1.00	1.00
Northern Belle						
North Belle Isle						
Ophir	1.25	1.37½	1.37½	1.37½	1.37½	1.37½
Overman						
Potosi	.35	.35	.35	.35	.30	.25
Savage	2.25	2.25	2.25	2.25	2.25	2 25
Scorpion						
Sierra Nevada	.50	.50	.45	.45	.35	.40
Silver King						
Tip-Top						
Union Cons	.45	.45		.45	.40	.40
Utah	.65	.60		.60	.45	
Wales Cons						
Yellow Jacket	.85	.80		.80	.90	.90

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CONTRACTS OPEN.

64 OIL WELL DRILLERS—PROPOSALS will be received by "Editor," care of ENGINEERING AND MINING JOURNAL, New York City, for boring for oil in France. Maximum depth 600 meters, through calcareous and bituminous shales. State price per meter, contractor finding all plant except engines.

86 SUPPLIES—PROPOSALS WILL BE RE-ceived by Charles W. Williams, Assistant Quartermaster U. S. Military Academy, West Point, New York, until September 27th, for furnishing to the Military Academy hardware, steam fittings, etc.

88 MARBLE WORK—PROPOSALS WILL be received at the Treasury Department, Office Supervising Architect, Washington, D. C., until September 25th, for furnishing and putting in place complete all the marble tiling, wainscoting, mantels, etc., required for the U. S. Court-House, Post-Office, etc., building at Columbus, Ohio.

92 ENGINES—PROPOSALS WILL BE RE-ceived by Messrs. Kingsley Brothers, Hamilton, Loudon County, Va., for one large engine, 15 horse-power, engine and boiler, 20 horse-power automatic, also two or three engines, say 3 or 4 horse-power, and boilers from 4 to 6 horse-power.

94 RUBBLE STONE—PROPOSALS WILL be received by Major G. L. Gillespie, U. S. Engineers, Post-Office Building, Boston, Mass., until October 13th, for 50,000 tons of rubble stone, delivered.

95 IRON-WORK PROPOSALS WILL BE received at the office of the Light-House Board, Washington, D. C., until October 4th, for furnishing the materials and labor of all kinds necessary for the completion and delivery on the site of the metal work of the Anclote Keys Light-House, Florida.

96 REMOVING ROCK—PROPOSALS WILL be received by O. M. Poe, Lieut.-Col. of Engineers, U. S. A., 34 Congress str et, West Detroit, Mich., until October 7th, for removing solid rock and boulders from the channel of Detroit River at the locality known as Lime-Kiln Crossing.

97 FILTERS—PROPOSALS WILL BE RE-ceived at the office of the City Clerk, Cheyenne, Wyoming, until October 8th, for a system or process of filtration adapted to the purification of the water-supply for a plant supplying 1,000,000 gallons, and for one supplying 1,500,000 gallons, in twenty-four hours.

98 PUMPING ENGINES—PROPOSALS will be received at the office of the Water-Works, Cleveland, Ohio, until October 16th, for erecting two pumping engines, each capable of pumping fifteen million United States standard gallons of water in twenty-four hours, against a maximum pressure of 100 pounds per square inch on the pumps.

99 JETTIES—PROPOSALS WILL BE RE-ceived at the United States Engineer's Office, Army Building, New York City, until September 30th, for the construction of jetties at Charleston Harbor, S. C., and for the construction of wing dams and training walls in Savannah Harbor and River, Georgia; for the construction of jetties at Cumberland Sound, Georgia and Florida, and also for continuing work upon the jetty at Brunswick Harbor, Georgia.

100 STEEL GUN-FORGINGS AND ARMOR—Proposals will be received by the Secretary of the Navy, Navy Department, Washington, D. C., until December 10th, for about 1310 tons of steel gun-forgings, and about 4500 tons of steel armor plates.

101 MACHINERY FOR CRUISERS AND gunboats—Proposals will be received by the Secretary of the Navy, Navy Department, Washington, D. C., until November 24th, for the construction and erection on board the vessels of engines, boilers, and appurtenances, complete in all respects.

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